

**SOURCE CONTROL EVALUATION REPORT
MCCALL OIL AND CHEMICAL SITE**

Prepared for

McCall Oil and Chemical Corporation
Portland, Oregon

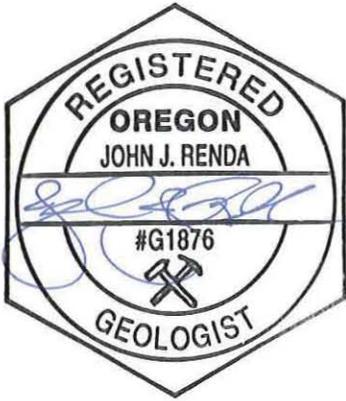
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February 2009

Source Control Evaluation Report
McCall Oil and Chemical Site

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1 SUMMARY OF FINDINGS

An assessment of the stormwater, storm sediment, groundwater, and bank soil at the McCall Oil and Chemical Corporation (MOCC) Site (Site) was performed to determine whether historical or ongoing Site activities may be impacting the beneficial uses of the Willamette River. Of primary concern are the ecological and human receptors of the Willamette River. The primary exposure pathways include direct contact of aquatic organisms with contaminants in river water or sediment, ingestion of contaminated fish or shellfish from the river by humans or wildlife, and consumption of drinking water from the river. Upland exposure pathways for industrial (occupational) Site workers, trench and construction workers, and terrestrial wildlife are separately evaluated in the Remedial Investigation Report for this facility (Anchor 2008).

The following transport pathways were evaluated in this report:

- Stormwater discharges to the Willamette River
- Storm sediment runoff and deposition in the Willamette River
- Groundwater seepage to the Willamette River
- Bank soil erosion to the Willamette River

The following constituents of interest (COIs) were evaluated in all media:

- Metals (arsenic, cadmium, chromium, copper, lead, and zinc)
- Total petroleum hydrocarbons (TPH, as diesel, oil, and gasoline)
- Polycyclic aromatic hydrocarbons (PAHs)
- Miscellaneous semivolatile organic compounds (SVOCs including 4-methylphenol, butyl benzyl phthalate, di-n-octyl phthalate, and dibenzofuran)

In addition, polychlorinated biphenyls (PCBs) were evaluated in Site stormwater and storm sediment, considering they are a key risk driver in the Portland Harbor Superfund Site, and volatile organic compounds (VOCs) were evaluated in Site groundwater, given their historical use and occurrence at the Site.

The source control screening evaluation follows the step-wise process outlined in Oregon Department of Environmental Quality (DEQ) guidance for source control decision-making at stormwater sites (DEQ 2009; Figure 2). Following are the key findings of this evaluation:

1) Comparison to Joint Source Control Strategy (JSCS) Screening Level Values (SLVs).

In stormwater, copper, lead, and zinc were carried forward for further evaluation on the basis of ecological risk, and HPAHs (high molecular weight PAHs) were carried forward based on exceedances of fish consumption criteria. In groundwater, arsenic was carried forward based on exceedances of human health criteria (fish consumption and drinking water). In catch basin sediment, all of the COI metals were carried forward based on exceedances of ecological SLVs and/or human health SLVs; LPAHs (low molecular weight PAHs) and HPAHs were carried forward based on exceedances of ecological criteria, and PCBs based on exceedances of human health criteria. No river bank soil samples exceeded any of the ecological or human health screening criteria for any COIs.

2) Effectiveness of MOCC Source Control Measures (SCMs). More than 10 years of National Pollution Discharge Elimination System (NPDES) monitoring data were statistically analyzed using least-squares regression techniques. This analysis indicates concentrations of total suspended solids (TSS), metals, and to some degree organic constituents are decreasing over time in response to the SCMs that have been implemented at the Site. Control of TSS is expected to provide added benefits for other contaminants that are associated with suspended sediments, such as particulate-bound metals and hydrophobic organics (e.g., HPAHs, bis(2-ethylhexyl)phthalate).

3) Comparison with Data from Comparable Sites. Comparison of Site stormwater data with comparable industrial sites in the Portland Harbor shows substantially lower concentrations (i.e., two to ten times lower) at the Site compared to those typically observed for this land use. Similarly, catch basin sediment data at the Site is generally at or below concentrations from other industrial sites. These comparisons provide evidence that the SCMs being implemented at the Site result in stormwater and storm sediment quality that is generally comparable or better than the industrial standard for the Portland Harbor.

4) Evaluation of Impacts to Willamette River. Sediment concentrations of COIs in the Willamette River adjacent to the Site are well below probable effects concentration (PEC) values and in many cases near or below threshold effects concentration (TEC) values and background concentrations. Bioassay tests at three locations showed no effects on

benthic organisms. Sediment concentrations adjacent to the Site are similar or lower than those observed at locations directly upstream and downstream. Similarly, contaminant residue concentrations in the tissues of river organisms and laboratory bioaccumulation test organisms show that metals concentrations adjacent to the Site are similar to upstream concentrations and harbor-wide mean values, while the concentrations of organic contaminants (PAHs and PCBs) adjacent to the Site are consistently lower than upstream concentrations and harbor-wide mean values. In combination, these observations provide a consistent weight of evidence that current or historical discharges from the Site have not caused any substantive impacts to sediment quality or tissue contaminant residues in the river.

In summary, the weight of evidence established during the source control screening evaluation shows that SCMs have been effective at reducing contaminant loads from the Site, stormwater quality at the Site is better than average for heavy industrial land use, there is no evidence of impacts to Willamette River sediments from Site discharges, and in general, source control is in place at this facility. Furthermore, MOCC's NPDES stormwater permit will ensure that source controls remain functional and effective in the foreseeable future. Therefore, we request that DEQ issue a favorable Stormwater Source Control Decision for this Site.

2 INTRODUCTION

2.1 Background

The Site is located in the industrialized area of northwest Portland along NW Front Avenue (see Figure 1). It occupies approximately 36 acres on the southwest bank of the Willamette River. The property is currently occupied by three separate facilities: MOCC, which operates a marine terminal and asphalt facility, Brenntag Pacific (Brenntag), which operates the former Great Western Chemical Corporation (GWCC) chemical distribution facility, and High Purity Products, which operates the northernmost facility on the former Great Western Property.

Before 1966, most of the land now occupied by the MOCC Oil Terminal was submerged beneath the Willamette River (Figure 2). The Port of Portland (Port) created new land along the Willamette during the mid-1960s by dredging and filling along the shore. This land, including a portion of the Site, was deeded to the Port by the State of Oregon in 1967. A detailed description of the ownership and operational history of the Site is in the *McCall Oil and Chemical Corporation Focused Remedial Investigation Workplan* (Workplan) (IT Corporation 2000), and in the Remedial Investigation (RI) Proposal, which is Appendix D to the Workplan.

Until 1995, the GWCC facilities consisted of two operating units, the GWCC Technical Center and the GWCC Portland Branch. The Technical Center included the former Chemax operations. In 1995, GWCC's two operating units were merged into the Portland Branch. Current and historical activities associated with the operations of each of these facilities are discussed in detail in chapters two through five of the RI Proposal (Appendix D to the Workplan).

The Site is included in the Willamette Greenway (Greenway) established by the City of Portland to monitor and control land use next to the river. The Site and surrounding properties are zoned for heavy industrial use, both within the Greenway on the northwest (i.e., downriver) bank and outside of the Greenway. Surrounding industries include petroleum bulk distribution terminals, chemical plants, sand and gravel operations, a steel fabrication facility, shipyards, and rail yards.

In the mid-1920s, the Port purchased the property now occupied by MOCC and Brenntag as part of an approximately 65-acre parcel that stretched from the lands now owned by Conoco/Phillips on the west, to the Willamette River. Prior to the mid-1940s the property was vacant. In 1946, Pioneer Flintkote Company (Flintkote) purchased two parcels from the Port. Those parcels are currently occupied by Brenntag and the MOCC asphalt plant, respectively.

Flintkote manufactured asphalt roofing shingles and tiles on the property from 1947 to approximately 1982. Historical occupation records indicate that Standard Oil Company operated a distribution center at the Site during the 1950s (SAFE 1994). By 1960, Douglas Oil Company (Douglas) occupied this address and operated an asphalt facility. In 1962, Douglas purchased the facility from Flintkote. Douglas and Flintkote continued to operate their respective facilities until 1982, when both parcels and the improvements were sold to MOCC. Chemax began operations on the former Flintkote site in early 1984. The Portland branch began its on-site operations in late 1985. In 1985, MOCC operated a lube oil distribution facility on part of the asphalt plant site. The lube oil operations were discontinued in 1991.

In the early to mid-1960s, the Port used dredge spoils from the Willamette River channel (primarily fine sand) to create new land along the Willamette River next to the Flintkote and Douglas facilities. As stated previously, this land was subsequently deeded to the Port by the state of Oregon in 1967. In the mid-1970s, MOCC constructed the marine terminal on the filled land. MOCC purchased the marine terminal land from the Port in 2004.

2.2 Purpose

This report provides a risk screening evaluation of Site stormwater, groundwater, catch basin sediment, and bank surface soils to provide an assessment of potential impacts to the Willamette River from historic and current Site industrial operations. Exposure pathways for river receptors include protection of direct toxicity to aquatic life via water and sediment, and protection of human health via fish consumption and drinking water. This report will show that the environmental information obtained by MOCC and the Lower Willamette Group (LWG) indicate Site operations have not impacted beneficial uses of the Willamette River, and source control is in place and functioning effectively at this facility.

2.3 Report Organization

The remainder of this report is organized as follows:

- **Section 3.** Section 3 develops the conceptual site model (CSM) of Site sources, transport pathways, and receptors, and identifies Site COIs to carry through the risk screening evaluation. This section also provides a summary of historic releases and cleanup actions at the Site and neighboring properties.
- **Section 4.** Section 4 provides a summary of sediment chemistry, tissue chemistry, and toxicity studies conducted in the Willamette River adjacent to the Site by the LWG.
- **Section 5.** Section 5 provides the results of the step-wise risk screening evaluation of stormwater, storm sediment, and bank soil. The screening evaluation includes a comparison of Site environmental data with JSCS SLVs, an assessment of the effectiveness of Site SCMs, a comparison of Site data with other industrial sites in Portland Harbor, and an assessment of possible Site impacts to the adjacent Willamette River.
- **Section 6.** Section 6 provides a concise summary of the results of the risk screening evaluation presented in Section 5, and an overall assessment of the status of source control at the Site.

3 CONCEPTUAL SITE MODEL

This section of the report describes the risk exposure pathways that could potentially impact ecological and human receptors in the Willamette River, the environmental media and COIs that are related to Site uses and operations, and potential source areas in and around the facility.

3.1 Potential Exposure Pathways

The CSM, shown on Figure 3, identifies the sources, pathways, and receptors that will be evaluated to assess the status of source control at this facility. Although MOCC and Brenntag operate independently, the CSM covers both facilities because the two facilities are adjacent to each other and have potentially overlapping exposure pathways. Of primary concern to this report are the ecological and human receptors of the Willamette River. Upland exposure pathways for industrial (occupational) Site workers, trench and construction workers, and terrestrial wildlife are evaluated in the RI Report for this facility (Anchor 2008). Because these pathways do not directly impact the beneficial uses of the Willamette River, they are not considered further in this report.

The following transport pathways will be considered in this source control evaluation:

- Stormwater discharges to the Willamette River
- Storm sediment runoff and deposition in the Willamette River
- Groundwater seepage to the Willamette River
- Bank soil erosion to the Willamette River

Once contaminants enter the river via one or more of these transport pathways, the contaminants may come to reside in the river water, bottom sediment, or in the tissue of fish or other aquatic organisms. There are several possible routes of exposure for ecological and human receptors:

- Direct contact of aquatic organisms with contaminants in water and/or sediment
- Bioaccumulation of contaminants in the tissues of fish or shellfish, and propagation of these contaminants through the food web via ingestion of contaminated fish or shellfish by humans or wildlife
- Use of the Willamette River as a drinking water source, and ingestion of contaminated river water

Recreational users of the Willamette River are unlikely to contact sediments and shallow river water adjacent to the Site during swimming and wading activities because the Site and surrounding properties are industrial in nature with no public access facilities. These are therefore considered insignificant pathways.

3.2 Description of Exposure Pathways

This section provides general descriptions of the primary transport pathways linking the Site to the Willamette River, i.e., surface water (stormwater and storm sediment) and groundwater transport pathways. Further information on surface water, groundwater, and soil investigations can be found in RI Report (Anchor 2008).

3.2.1 Surface Water Pathway Description

The Site storm drain system is shown on Figure 4 and additional details are provided in Appendix A.

Stormwater from the Site enters the river via three outfalls. Stormwater from Site catch basins S-1, S-2, and others along Front Avenue discharges to the City storm sewer and ultimately the City of Portland outfall COP-022. In addition to stormwater from the Site, outfall COP-022 receives stormwater from a very large drainage area, including city streets, commercial, and industrial facilities. Stormwater from the Brenntag facility discharges to the river at Outfall S-3. Stormwater from the MOCC Marine Terminal and portions of the asphalt plant discharges to the Oil/Water Separator and from there to Outfall S-4.

The entire facility is paved, with two exceptions. The rectangular shaped area between the Brenntag facility and the MOCC Marine Terminal has a gravel surface. Although it is unpaved, vehicle traffic has compacted the gravel, creating a low permeability surface that causes much of the incident rainfall to runoff to the catch basins in this area. Stormwater from those catch basins flows to the MOCC oil-water separator located at S-4. The area within the MOCC terminal above-ground tank farm is also unpaved. Some infiltration may occur in this area, although much of the rainwater that falls into the tank farm also runs off and is routed to the oil water separator at S-4.

There are three private stormwater outfalls on the river shoreline near the boundary of Front Avenue LLP property and MOCC property (Figure 4). These outfalls apparently receive stormwater from the three properties currently owned by Front Avenue LLP, including Glacier Northwest, Tube Forgings, and CMI Northwest.

3.2.2 Groundwater Pathway Description

Based on soil borings and monitoring wells advanced during the RI, there are three geologic units of interest underlying the uplands at the Site. The uppermost geologic unit is dredge fill derived from the Willamette River, placed in the 1960s by the Port of Portland, and later developed by MOCC as a marine terminal above-ground tank farm. The dredge fill overlies river alluvium, which overlies basaltic bedrock. The shallow alluvial aquifer consists of the combined sequence of dredge fill and alluvium, approximately 75 feet thick, which forms a single hydrogeologic unit. The combined unit consists of interbedded fine- to medium-grained sand and silt, with an indistinct lithologic contact between the base of the fill and the upper alluvium (Anchor 2008).

Because most of the Site is paved, groundwater in the alluvial aquifer is recharged primarily by underflow from areas to the south (Tube Forgings) and to the west (Chevron Asphalt and Willbridge terminals). The groundwater flows in a northerly direction toward the Willamette River, with some convergence of flow lines toward the embayment near the S3 outfall. Although there are seasonal changes in water level and gradient, the northerly flow direction is relatively consistent throughout the year. A detailed description of Site hydrogeology, including groundwater potentiometric surface maps, is in the RI Report (Anchor 2008).

3.3 Contaminants of Interest (COIs)

The Site COIs were selected on the basis of chemicals that were 1) historically or currently used or stored at the facility, or at adjacent facilities, 2) detected in adjacent Willamette River sediment samples, or 3) detected in Site stormwater. The classes of COIs historically or currently used or stored at the Site include:

- Arsenic, chromium, and copper (associated with the historical production of wood-treating chemicals)
- TPH as diesel and oil

- PAHs
- Chlorinated VOCs

Because of the extended history of petroleum storage, handling, and shipping at the various bulk terminals in the vicinity of the Site, the following COIs were included in the investigation, although no significant on-site sources of these chemicals are known:

- TPH as gasoline
- Benzene, toluene, ethylbenzene, xylenes (BTEX)

During the initial Portland Harbor Sediment Investigation (Weston 1998), which ultimately helped support the Superfund listing of the Portland Harbor, the U.S. Environmental Protection Agency (EPA) collected and analyzed sediment samples from several Willamette River locations near the Site. Four SVOCs were detected in these sediments at concentrations above Portland Harbor “baseline” levels, and as a result, these SVOCs were added to the list of COIs for the Site:

- Miscellaneous SVOCs (4-methylphenol, dibenzofuran, butyl benzyl phthalate, and di-n-octyl phthalate)

Finally, several metals were added to the list of COIs based on their occurrence in Site stormwater:

- Cadmium, lead, and zinc

In summary, the following COIs were identified for the RI of the Site and are adopted for use in this Source Control Evaluation Report:

- Metals (arsenic, cadmium, chromium, copper, lead, and zinc)
- TPH (as diesel, oil, and gasoline)
- PAHs
- Miscellaneous SVOCs (4-methylphenol, butyl benzyl phthalate, di-n-octyl phthalate, and dibenzofuran)
- BTEX
- Chlorinated VOCs

This list of COIs was presented in the RI Workplan for the Site and was subsequently approved by DEQ. In some cases, an expanded list of analytes was requested from the laboratory (e.g., additional metals, phthalates, etc.) and is included in the evaluation.

3.4 Potential Upland Sources and Historical Releases

3.4.1 MOCC and GWCC Sites

From 1955 to the present, MOCC and the previous owner, Douglas Asphalt, have kept careful records of accidental releases that occurred during industrial operations. MOCC releases related to the Marine Terminal and asphalt plant are documented in Table 1. The history of environmental releases at GWCC is documented in Table 2.

Review of Tables 1 and 2 shows that most of the releases at the MOCC Oil Terminal and the asphalt plant consisted of petroleum products, including diesel, raw asphalt, and bunker C. The table also shows the response actions taken to clean up each release. Most of the releases at the GWCC facility were various acids.

The GWCC release history includes a 1992 release of copper-chrome-arsenic (CCA) that occurred at the CCA process area of the GWCC plant. In cooperation with DEQ, excavation and off-site landfill disposal of CCA contaminated soil was completed. The details of the CCA soil cleanup are provided in Appendix D of the RI Workplan. Monitoring wells MW-1, -2, -3, and -4 were installed to assess possible groundwater quality impacts from the CCA release.

Transient Light Non-aqueous Phase Liquids (LNAPL) at Well MW-8. At well MW-8, petroleum hydrocarbons were logged in sand at a depth of 30 feet below ground when the well was being installed, but LNAPL has not been detected during subsequent sampling of the well (Anchor 2008).

Chlorinated VOC Groundwater Plumes. The largest area of chlorinated VOC contamination is a plume that originates near well EX-1 in the former solvent drumming area and extends in a northerly, downgradient direction to wells MW-7 and MW-8 near the river. A second area of chlorinated VOC contamination includes monitoring wells

MW-1, -2, -3, -4, and -10. A map of the VOC plumes is included in the Site RI Report (Anchor 2008).

3.4.2 Tube Forgings

Bunker C fuel was released from an underground storage tank (UST) on the Tube Forgings plant site near MOCC's southeastern property boundary. During the RI, bunker C NAPL was detected adjacent to the Tube Forgings property in the vicinity of monitoring well MW-11 (see Figure 4). This is the only occurrence of petroleum NAPL detected on the Site, aside from the temporary observation during installation of MW-8.

Cleanup of the underground storage tank bunker C release occurred on the Tube Forgings property, and the cleanup is documented in the Groundwater Investigation Report, Front Avenue LLP Site (Maul, Foster, Alongi, Inc. 2004). However, soil and groundwater data collected during the RI identified a zone of bunker C NAPL on the MOCC property adjacent to the former Tube Forgings UST. Forensic analysis conducted confirms that the LNAPL adjacent to the Tube Forgings property is bunker C. The LNAPL is not connected to any of the MOCC fuel storage facilities.

The RI (Anchor 2008) data indicate the bunker C NAPL is not migrating and will not migrate to the Willamette River. The bunker C NAPL is approximately 700 feet from the Willamette River shoreline and is not considered a threat to its beneficial uses.

3.4.3 Willbridge Terminal

Since at least the early 1970s, floating petroleum hydrocarbon products, primarily diesel, with some gasoline, have discharged to the Willamette River along the backfill of the former wood stave Doane Avenue storm sewer and along the backfill of the 1982 City of Portland replacement concrete storm sewer (COP-022). The storm sewer and Outfall 022 are located on Conoco/Phillips property within a few feet of the northwestern (i.e., downriver) property line (see Figure 4).

From the 1970s through the present, various oil companies have conducted free product recovery and cleanup actions on the shoreline near the COP-022 outfall. Historic petroleum product releases have occurred, and dissolved petroleum hydrocarbon plumes exist on the Chevron Asphalt and Conoco/Phillips tank farms located

upgradient from the Site. The petroleum free product has migrated along the City storm sewer backfill to the river and as a result, the outfall location has been surrounded by floating petroleum containment booms.

Several of the LWG river sediment sampling sites were located very close to the COP-022 outfall. Petroleum-related COIs detected by LWG at sediment sample locations in this area may be at least partially sourced from historic free product discharges migrating along this utility corridor to the shoreline.

4 LWG SEDIMENT AND TISSUE QUALITY INVESTIGATIONS

4.1 Sediment Chemistry

The LWG Round 2 sediment sampling event included eight sediment sample locations adjacent to the Site, as shown on Figure 4. The upstream boundary of the Site with Tube Forgings, LLP is at approximate river mile 8.03 and the downstream boundary of the Site with Conoco/Phillips is at approximate river mile 7.8. Table 3a is a list of the LWG sediment sample sites adjacent to the Site, and within approximately ½ mile upstream and downstream of the Site boundaries on the western side of the river.

The following eight sampling locations are adjacent to the Site, from upstream to downstream:

- G413, C413
- G410
- G407
- G403, C403
- G399
- G391
- C532
- G404

The sample numbers with the “G” prefix are surface samples obtained the top 10 centimeters of the sediment, and those with the “C” prefix are subsurface core samples obtained from various deeper intervals.

The LWG sediment samples were tested for a wide range of analytes. Analytical results for the key COIs at the Site are summarized in Table 3a, including PAHs (LPAHs, HPAHs, and Total PAHs), metals (arsenic, chromium, copper, and zinc), and miscellaneous SVOCs (dibenzofuran, 4-methylphenol, and di-n-octylphthalate). In addition, analytical results for Total PCBs are also summarized. Although PCBs are not a Site COI, they deserved further evaluation because PCBs are a key contaminant of concern (COC) for the Portland Harbor, they are bioaccumulative, and were detected in samples from this reach of the river.

4.1.1 Downstream Trends in Concentration

A comparison of upstream, adjacent, and downstream sediment concentrations in the Willamette River for the Site COIs is summarized in Table 3a. At the bottom of the table are statistical summaries of the sediment quality data from upstream, adjacent, and downstream areas, including the arithmetic mean and median concentrations. Harbor-

wide mean and median concentrations are also provided. Spatial plots of Site COI concentrations by river mile showing downstream trends in sediment quality, from upstream to downstream of the Site, are provided in Appendix B.

The following observations are evident from a spatial analysis of the sediment quality data:

- **Metals.** Mean and median metals concentrations adjacent to the Site are similar to mean and median harbor-wide values, showing no evidence of unusual enrichment. Arsenic and chromium concentrations adjacent to the Site are comparable to upstream and downstream concentrations in the river. Copper and zinc concentrations adjacent to the Site are comparable to upstream concentrations and lower than downstream concentrations.
- **PAHs.** Median PAH concentrations adjacent to the Site are 3 to 5 times lower than median harbor-wide values, and mean PAH concentrations adjacent to the Site are 2 to 3 orders of magnitude lower than mean harbor-wide values. Mean and median PAH concentrations adjacent to the Site are lower than either upstream or downstream concentrations.
- **Other SVOCs.** Mean and median concentrations of dibenzofuran and the phthalate compounds adjacent to the Site are one to two orders of magnitude lower than mean and median harbor-wide values. The mean concentration of 4-methylphenol adjacent to the Site is 3 times less than the harbor-wide value, and the median concentration is similar. SVOC concentrations adjacent to the Site are similar to upstream concentrations and similar or lower than downstream concentrations.
- **PCBs.** Mean PCB concentrations adjacent to the Site are about 4 times lower than the harbor-wide values, and the median concentrations are similar. Mean and median PCB concentrations adjacent to the Site are similar or lower than upstream concentrations and significantly lower than downstream concentrations.

In general, these data indicate the Site is not a significant source of any of these COIs to the Portland Harbor. These data are discussed further in the source control screening evaluation (see Section 5.8).

4.1.2 Sediment Screening Level Comparisons

The LWG sediment samples are compared to JSCS PEC values in Table 3a. Metals are also compared to background concentrations (i.e., those derived from natural geologic formations in unimpacted areas of the Pacific Northwest).

The following observations are evident from the screening level comparison:

- **Metals.** Arsenic and chromium concentrations in river sediment adjacent to the Site are within the range of background values, and copper is just slightly above the range. Copper and zinc concentrations are well below PEC values and very close to conservative TEC values (TEC = 32 and 121 milligrams per kilogram [mg/kg], respectively; McDonald et al. 2000).
- **PAHs.** Total PAH concentrations in river sediment adjacent to the Site are well below the PEC value, and below the very conservative TEC value in all but one sample (TEC = 1,610 micrograms per kilogram ($\mu\text{g}/\text{kg}$); McDonald et al. 2000).
- **Other SVOCs.** PEC values are not available for these constituents. Sediment quality values from any data source are rare or non-existent for these constituents.
- **PCBs.** Total PCB concentrations in river sediment adjacent to the Site are well below the PEC value, and below the very conservative TEC value in a majority of samples (TEC = 60 $\mu\text{g}/\text{kg}$; McDonald et al. 2000).

In general, these data indicate the Site COIs for which screening levels are available are expected to cause little or no toxicity to aquatic life in Willamette River sediments adjacent to the Site. This was confirmed by the results of bioassay tests conducted on these sediments, as discussed in the next section. These data are also discussed further in the source control screening evaluation (see Section 5.8).

4.2 Sediment Toxicity

This section discusses the results of bioassay testing of river sediment samples obtained near the Site. LWG conducted bioassay tests on sediment samples G401, G403, and G413. In summary, none of the three samples showed any significant biological effects to *Chironomus* growth or survival or *Hyalella* survival, and therefore there is no indication that these

sediments exhibit toxicity to benthic invertebrates or to the invertebrate prey base of upper level organisms such as salmonids.

Below is a brief description of the freshwater bioassay performance standards and endpoints used in the biological testing program.

- **Freshwater Amphipod Bioassay.** This bioassay measures the survival of amphipods (*Hyalella azteca*) after a 28-day exposure to the test sediment. Although this bioassay also has a growth endpoint, the growth endpoint was shown to respond primarily to the physical characteristics of the sediment (e.g., percent fines and ammonia) and to have low reliability in predicting toxicity (Windward et al. 2006); therefore, this endpoint was not included in the analysis.
- **Freshwater Midge Bioassay.** This test measures the survival and growth of the midge *Chironomus tentans* after a 10-day exposure to the test sediment.

The response of bioassay organisms exposed to the tested material representing each sediment unit is compared to the response of these organisms in control treatments, given that freshwater reference sites are not yet available in the region. The LWG in consultation with EPA established three levels of biological effects:

- “No Effects” (Level 1): Greater than 90 percent of control survival or growth
- “Low Effects” (Level 2): Greater than 80 percent of control survival or growth
- “Moderate Effects” (Level 3): Greater than 70 percent of control survival or growth

These biological effects levels (Levels 1, 2, and 3) are based on statistically significant differences between the test sediment and control sediment as well as exceedance of the minimum difference thresholds.

The three sediment samples chosen by LWG to perform bioassays appear to be representative of the full range of PAH concentrations detected across the Site. The samples selected are G401, G403, and G413. G401 is located adjacent to Conoco/Phillips property near City stormwater outfall COP-022, just past the downstream boundary of the Site, as shown on Figure 4. The test results are shown in Table 4.

***Hyalrella* Bioassay.** The *Hyalrella* bioassay control had an acceptable absolute mean mortality of 1.25 percent. *Hyalrella* mortality in the test sediments G401, G403, and G413 is 3.75 percent, 3.75 percent, and 1.25 percent, respectively (Table 4.1). Each test response is less than 10 percent over the control mortality; therefore, the test sediments exhibited no significant biological effects at the most stringent “No Effects” level for the *Hyalrella* mortality endpoint.

***Chironomus* Bioassay.** The *Chironomus* bioassay control had an acceptable absolute mean mortality of 5 percent and an acceptable growth performance greater than 0.6 mg minimum mean weight per organism. Table 4.2 shows that each of the test sediments had less than 10 percent mortality over the control mortality and therefore the test sediments exhibited no significant biological effects at the most stringent “No Effects” level for the *Chironomus* mortality endpoint. Table 4.3 shows that each of the test sediments had less than 10 percent reduction in growth over the control sediment, and therefore the test sediments exhibited no significant biological effects at the most stringent “No Effects” level for the *Chironomus* growth endpoint.

4.3 Tissue Contaminant Residues in Biological Organisms

This section discusses the chemical analytical results of tissue samples from organisms obtained near the Site and from laboratory bioaccumulation test species exposed to sediments obtained near the Site.

The tissue testing program conducted by LWG included the following samples:

- **Round 1 Tissue Data.** In situ crayfish and sculpin samples were collected from the banks of the Willamette River in August through November 2002 (Integral 2004). Clam samples (*Corbicula* sp.) were also collected from a limited group of stations (07R006 and 07R003).
- **Round 2 Tissue and Bioaccumulation Test Data.** In December 2005 through March 2006, tissue samples from both in situ organisms and laboratory bioaccumulation tests were analyzed. In general, this phase of testing was focused on obtaining larger tissue volumes and achieving better analytical detection limits. In situ samples of the clam *Corbicula* sp. were collected and analyzed. Bioaccumulation tests (28-day

tests) were conducted on a freshwater oligochaete worm (*Lumbriculus variegates*) and a clam (*Corbicula fluminea*) (Integral 2006).

Samples on the west bank of the river between approximately RM-6 and RM-9 were evaluated for spatial trends in tissue residue concentrations. The following LWG Round 1 tissue sampling locations were evaluated, from upstream to downstream:

- 09R003 (up)
- 08R001 (up)
- 08R002 (adjacent)
- 07R003 (down)
- 07R006 (down)
- 06R004 (down)
- 06R001 (down)

The following LWG Round 2 tissue sampling locations were evaluated, from upstream to downstream (FC = field clam, BT = collocated bioaccumulation test for worm and clam):

- BT028/ FC028 (up)
- BT025/ FC025 (up)
- BT024/ FC024 (up)
- BT021/ FC021 (adjacent)
- BT020/ FC020 (down)
- BT018/ FC018 (down)
- BT017/ FC017 (down)
- BT015/ FC015 (down)
- BT014/ FC014 (down)

Tissue sample location maps are provided in Appendix B.

The LWG tissue samples were tested for a wide range of analytes. Analytical results for the key COIs at the Site are summarized in Table 3B, including PAHs (LPAHs and HPAHs) and metals (arsenic, chromium, copper, and zinc). Although PCBs are not a Site COI, tissue concentrations of coplanar PCB congeners are summarized because PCBs are a key bioaccumulative contaminant of concern (BCOC) for the Portland Harbor. Graphs of

miscellaneous SVOCs (e.g., 4-methylphenol and representative phthalates) are provided in Appendix B but are not discussed further because these constituents are considered a low priority for bioaccumulation potential (Hoffman 2003; Corps et al. 2006; DEQ 2007).

4.3.1 Downstream Trends in Tissue Concentration

A statistical comparison of upstream, adjacent, and downstream tissue concentrations in Willamette River organisms as well as laboratory organisms cultured in Willamette River sediments is summarized in Table 3B. Harbor-wide mean and 95th percentile tissue concentrations are also provided. Spatial plots of tissue concentrations by river mile showing downstream trends in tissue quality, from upstream to downstream of the Site, are provided in Appendix B.

The following observations are evident from a spatial analysis of the tissue quality data:

- **Metals.** Tissue concentrations for metals adjacent to the Site are generally not differentiable (e.g. plus or minus 50 percent) from tissue concentrations upstream or downstream of the Site. Tissue metals concentrations adjacent to the Site are also similar to Harbor-wide mean values and do not show any evidence of unusual enrichment.
- **PAHs.** In the Round 2 data, mean PAH concentrations (LPAHs and HPAHs) in tissue samples or bioaccumulation test samples adjacent to the Site are approximately two to twenty times lower than upstream tissue samples. Somewhat smaller differences are evident in the Round 1 data.
- **PCBs.** Mean PCB concentrations adjacent to the Site are consistently lower than upstream values (about 1 to 10 times lower), as well as harbor-wide mean concentrations (about 2 to 5 times lower).

In general, these data indicate the Site is not a significant source of any of these COIs to tissue residues in Portland Harbor organisms. These data are discussed further in the source control screening evaluation (see Section 5.8).

5 MCCALL RISK SCREENING EVALUATION

In this section, a multi-step risk screening evaluation is conducted to assess whether Site stormwater, storm sediment, and groundwater are protective of the Willamette River. The risk screening evaluation considers direct effects to aquatic organisms in the Willamette River, the potential for bioaccumulative effects to humans and upper-level wildlife species that consume fish and shellfish from the river, and as a drinking water resource. The Site RI Report (Anchor 2008) also includes a risk screening evaluation of soil and groundwater data for protection of upland Site workers via soil and groundwater contact, inhalation of dust and volatiles, and related upland exposure pathways. Because those pathways are not directly related to the beneficial uses of the Willamette River, they are not included in this report.

5.1 Risk Screening Evaluation Process

The risk screening evaluation consists of the following steps, following the sequential logic of the decision-making flow chart provided in DEQ's *Guidance for Evaluating the Stormwater Pathway at Upland Sites* (DEQ 2009; Figure 2).

- **Step 1 – Comparison to SLVs.** Stormwater, groundwater, catch basin sediment, and bank surface soils are compared to SLVs for protection of ecological receptors (invertebrates, fish, and wildlife) and human health via fish consumption and drinking water (see Tables 5, 6, and 7).
 - **Step 1A. Comparison to Willamette River Background Levels.** Concentrations of COIs below the range of background concentrations in the Pacific Northwest (DEQ 2002; WDOE 1994) are not considered further.
 - **Step 1B. Comparison to Ecological SLVs.** Concentrations of COIs that are below levels considered protective of aquatic life in the Willamette River are not considered further for ecological risk.
 - **Step 1C – Comparison to Human Health SLVs.** Concentrations of COIs that are below levels considered protective of human health are not considered further for human health risk. Possible human health exposure pathways are drinking water and fish ingestion. Human health SLVs are based on large-scale and long-term exposure scenarios that are significantly averaged over space (e.g., home range of fish, harvesting area of fishermen, capture zone of a water intake system) and time (e.g., cancer risk assumes 70-year exposure period). Therefore,

human health SLVs are evaluated on the basis of site-wide average concentrations to account for the spatial and temporal averaging inherent in these types of exposures, consistent with agency guidance (EPA 1991, EPA 2006).

- **Step 2 – Evaluation of SCM Effectiveness.** MOCC's stormwater SCMs will be described and their effectiveness will be evaluated using regression analysis of NPDES monitoring data to identify trends of reducing concentrations over time (see Table 8 and Appendix B).
- **Step 3 – Comparison with Data from Comparable Sites.** MOCC's stormwater and catch basin sediment data will be compared to data from other industrial sites in the Portland Harbor (see Tables 9 and 10). The environmental quality of the MOCC storm drain system relative to what typically runs off similar industrial lands in the Portland area will be considered in the weight-of-evidence analysis.
- **Step 4 – Review Evidence of Impacts to Willamette River.** Sediment quality and tissue quality data collected upstream, downstream, and adjacent to the Site will be evaluated for evidence of Site impacts to the Willamette River and potential linkages with Site COIs and transport pathways (see Table 3). The results of the Round 1 and Round 2 sampling events by the Lower Willamette Group are used in this analysis.

An overview of the risk screening evaluation for the Site is provided in Table 11.

The SLVs used in Step 1 of the risk screening evaluation are taken from Table 3-1 of the Portland Harbor JSCS (DEQ and EPA 2007 version). The JSCS criteria for water are derived from these primary data sources:

- **Aquatic Life Criteria**
 - EPA 2006 National Recommended Water Quality Criteria (NRWQC)
 - DEQ 2004 Ambient Water Quality Criteria (AWQC)
- **Drinking Water Criteria**
 - EPA Maximum Contaminant Levels (MCL) for Drinking Water
 - EPA Region 6 Preliminary Remediation Goals (PRG) for Tap Water
- **Fish Consumption Criteria** (via Bioaccumulation)
 - EPA 2006 National Recommended Water Quality Criteria (NRWQC)

The JSCS criteria for solids (catch basin sediments and bank soils) are derived from these primary data sources:

- **Aquatic Life Criteria.** McDonald et al. 2000 PECs
- **Fish Consumption Criteria.** DEQ 2007 Bioaccumulative Sediment SLVs

In some cases, however, a lower tier of less reliable criteria were included in the JSCS and should be given less weight in the risk screening evaluation. In some cases, SLVs may have been derived from less rigorous data sets (e.g. Oak Ridge Tier 2 “secondary” values), outdated studies, and studies without peer review. In other cases SLVs may be inconsistently applied or contradictory between programs. In the following discussion, we will note particular instances where we believe the weight of the SLVs in the risk screening evaluation should be diminished based on these types of technical deficiencies.

5.2 Step 1 – Stormwater Comparison to SLVs

Table 5 provides a comparison of MOCC stormwater data with SLVs for protection of aquatic organisms and human health (fish consumption and drinking water). Stormwater was sampled at four locations (S-1 through S-4) between December 2000 and November 2007 (see Figure 4 and Appendix A). Catch basins S-1 and S-2 drain the parking area on the south side of the Brenntag facility. Catch basin S-3 receives stormwater from the northeastern portions of the Brenntag facility. Location S-4 is the oil-water separator that receives water from the MOCC terminal.

5.2.1 Metals

As an initial screen, SLVs for metals are compared to analytical results for both “dissolved” and “total” fractions (i.e., “total” fraction includes suspended sediment), even though ambient water quality criteria are regulated on a dissolved basis. The relative distribution of the stormwater contaminant load between the total and the dissolved (and more bioavailable) fraction is therefore considered in the weight-of-evidence analysis.

The results of the risk screening analysis for metals in stormwater are summarized below and in Table 11:

- **(1A) Background Screen.** Arsenic, chromium, and silver are within the range of naturally occurring background concentrations. Over 90 percent of the analytical results for cadmium, manganese, and nickel are also within the range of background concentrations. Each of these data sets contains a single result that is slightly elevated above the background value (by 10 to 25 percent, and only in the “total” fraction) but these results are nevertheless consistent with the statistical basis for the background value (i.e., background is established at the 90th percentile, which leaves a 10 percent probability of exceedance; DEQ 2002; WDOE 1994).
- **(1B) Ecological Screen.** Copper and zinc concentrations in Site stormwater are commonly above background and the aquatic life SLVs, in both the total and dissolved fractions; both metals are carried forward for further analysis. In about 10 percent of the results (three out of 31 samples), lead concentrations were above background and the aquatic life SLV. Although all three lead exceedances were from the total fraction, and in all cases the dissolved concentrations were more than an order of magnitude lower (about 20 to 60 times lower), lead will be carried forward as well.
- **(1C) Human Health Screen.** Although a few individual lead results (three out of 31 samples) were above the drinking water criterion, the Site-wide average lead concentration (8.5 µg/L) is below both background (13 µg/L) and the drinking water criterion (15 µg/L) and will not be considered further. No other metals pose a concern for human health risk.
- **Summary.** Copper, lead, and zinc are carried forward for further evaluation on the basis of ecological risk.

5.2.2 Organics

The screening of organic COIs in Site stormwater includes the following modifications to the JSCS criteria:

- Aquatic life criteria for PAHs are taken from EPA 2003. DEQ has agreed to the use of the EPA 2003 criteria on an interim basis (see page 5 of the agency’s comment letter dated April 30, 2008).
- The JSCS extrapolated the drinking water maximum cleanup level (MCL) for benzo(a)pyrene to all of the light and heavy priority pollutant PAHs. We do not

believe it is appropriate to indiscriminately assign the benzo(a)pyrene criterion to non-carcinogenic PAHs with toxicities many orders of magnitude lower, and we have therefore limited the application of this criterion to the listed carcinogenic PAHs.

The results of the risk screening analysis for organics in stormwater are summarized below and in Table 11:

- **(1A) Detection Limit Screen.** PCBs are not detected in any stormwater samples and are not considered further.
- **(1B) Ecological Screen.** None of the PAHs exceeded their aquatic life criteria. None of the phthalates or other semivolatile compounds exceeded their aquatic life criteria, with one exception. In one sample (S-2 on 11/12/07), bis(2-ethylhexyl)phthalate (DEHP) exceeded the DEQ ambient water quality guidance value from OAR Table 33C for the non-specific “phthalate esters” group. However, the National Recommended Water Quality Criteria (NRWQC) states: “There is a full set of aquatic life toxicity data that show DEHP is not toxic to aquatic organisms at or below its solubility limit” (see EPA 2006, Footnote X). By complying with the NPDES permit limit for oil and grease, it is assumed that petroleum compounds are not causing adverse impacts on the river.
- **(1C) Human Health Screen.** LPAHs and noncarcinogenic HPAHs were four to six orders of magnitude lower than their fish consumption criteria. Site-wide average concentrations of several carcinogenic HPAHs were above the fish consumption criteria and will be carried forward in the screening evaluation. However, all carcinogenic HPAHs were below the drinking water criterion. Although a few individual DEHP results (two out of seven samples) were above the fish consumption and/or drinking water criterion, the Site-wide average DEHP concentration (1.8 µg/L) is below both criteria.
- **Summary.** HPAHs are carried forward in the screening evaluation based on exceedances of the fish consumption criteria in several samples. DEHP and LPAHs are carried forward for informational purposes and to build a stronger weight of evidence that these COIs are adequately controlled.

5.3 Step 1 – Groundwater Comparison to SLVs

Table 6 provides a comparison of Site groundwater data from shoreline monitoring wells with SLVs for protection of aquatic organisms and human health (fish consumption and drinking water). Shoreline monitoring wells include EX-2, EX-3, EX-5, MW-5, MW-7, MW-8, and MW-14. These wells were sampled during several groundwater monitoring events between December 2000 and October 2004.

5.3.1 Metals

As an initial screen, SLVs for metals are compared to analytical results for both “dissolved” and “total” fractions (i.e., “total” fraction includes suspended sediment), even though ambient water quality criteria are regulated on a dissolved basis. The relative distribution of the stormwater contaminant load between the total and the dissolved (and more bioavailable) fraction is therefore considered in the weight-of-evidence analysis.

The results of the risk screening analysis for metals in groundwater are summarized below and in Table 11:

- **(1A) Background Screen.** All three of the metals analyzed in groundwater (arsenic, chromium, and copper), are above background levels in multiple samples.
- **(1B) Ecological Screen.** Total chromium and total copper are above their dissolved aquatic life criteria in two and four samples, respectively. All of the exceedances are restricted to the total fraction in wells MW-7 and MW-8, with dissolved concentrations being one to two orders of magnitude lower. Soil disturbance during the installation of monitoring wells MW-7 and MW-8 is the suspected cause of the exceedances, as they only occurred within six months of installation. Concentrations of these metals have since dropped by approximately two orders of magnitude, and are currently below background concentrations.
- **(1C) Human Health Screen.** Arsenic exceeds its fish consumption criterion in a majority of samples, and its drinking water criterion in several samples, in both total and dissolved phases. Chromium exceeds its drinking water criterion in

two samples, but the exceedances are believed to be caused by excess sediment in monitoring wells MW-7 and MW-8 following installation (see above).

- **Summary.** No metals in groundwater are carried forward on the basis of ecological risk. Arsenic will be evaluated further based on exceedances of human health criteria.

5.3.2 Organics

The results of the risk screening analysis for organics in groundwater are summarized below and in Table 11:

- **(1A) Detection Limit Screen.** There were no detections of di-n-octyl phthalate, and very few detections of butyl benzyl phthalate and dibenzofuran (two out of 31 samples, each one). Only four VOCs were detected in any of the shoreline monitoring wells. Only these four VOCs (listed in Table 6) were subjected to the risk screening evaluation.
- **(1B) Ecological Screen.** Carbon disulfide (a VOC) exceeded the Oak Ridge National Laboratory's Tier 2 secondary chronic value (Suter and Tsao 1996) in only one out of 26 samples, at a relatively low level (approximately 50 percent above the SLV). This chemical is not considered further. No other organic COIs (PAHs, phthalates, or other VOCs) exceeded their aquatic life criteria.
- **(1C) Human Health Screen.** No LPAHs or miscellaneous semivolatile compounds were above human health SLVs. Carcinogenic PAHs were above fish consumption criteria in four out of 30 samples and above drinking water criteria in one out of 30 samples; Site-wide average concentrations for five carcinogenic PAHs were slightly above fish consumption criteria but all were below drinking water criteria. Vinyl chloride was detected in approximately 10 percent of the samples (three out of 28 samples) at concentrations above the Tap Water preliminary remediation goal (PRG), but below the MCL. Because these few detections of vinyl chloride are in compliance with national drinking water standards, as well as fish consumption criteria, they will not be considered further.
- **Summary.** No organic COIs are carried forward in shoreline groundwater on the basis of ecological risk. Carcinogenic PAHs will be evaluated further based on occasional exceedances of human health criteria in a few samples.

5.4 Step 1 – Catch Basin Sediment Comparison to SLVs

Table 7 provides a comparison of MOCC catch basin sediment data with SLVs for protection of aquatic organisms and human health (fish consumption and drinking water). As discussed below, a number of metals and organic COIs exceed their respective SLVs in catch basin sediment samples. However, the extremely conservative nature of this type of comparison must be emphasized. While catch basin sediments are evaluated using freshwater sediment criteria, aquatic organisms do not live in storm drains, and catch basins are not a relevant point of exposure. Furthermore, catch basins and filter inserts are designed to trap sediments and remove them from the storm drain system. As a result, samples collected from these devices may not be representative of the pollutants that are actually being transported to the river.

5.4.1 Metals

The results of the risk screening analysis for metals in catch basin sediment is summarized below and in Table 11:

- **Background Screen.** Manganese and silver are below background levels and will not be considered further.
- **Ecological Screen.** In addition to manganese and silver, cadmium and mercury did not exceed their ecological SLVs (PECs and related criteria) in any sample. All other metals (arsenic, chromium, copper, lead, nickel, and zinc) were above ecological SLVs in at least one catch basin sample.
- **Human Health Screen.** Arsenic, cadmium, lead, and mercury exceeded the DEQ bioaccumulation SLVs in all or a majority of the samples.
- **Summary.** All metals except manganese and silver will be carried forward for further evaluation based on exceedances of ecological SLVs, human health SLVs, or both.

5.4.2 Organics

The results of the risk screening analysis for organics in catch basin sediment are summarized below and in Table 11:

- **(1A) Detection Limit Screen.** Low molecular weight phthalates (dimethyl phthalate and diethyl phthalate) were not detected in catch basin sediment.

- **(1B) Ecological Screen.** Concentrations of several HPAHs are above their ecological criteria in several samples. LPAH criteria were also exceeded, but fewer compounds and fewer samples were affected. No phthalates or PCBs were above their ecological criteria.
- **(1C) Human Health Screen.** The DEQ bioaccumulative SLV for PCBs was exceeded in all catch basin sediment samples. Although a few samples were above the DEQ bioaccumulative SLV for pyrene, the site-wide average concentration was below the SLV. Bioaccumulative SLVs for di-n-butyl-phthalate and bis(2-ethylhexyl) phthalate were also exceeded; however, the phthalate bioaccumulative SLVs are derived from an older DEQ guidance document that was not subjected to peer review, and these SLVs were not brought forward in DEQ's 2007 bioaccumulation guidance. Recent work by the multi-agency Regional Sediment Evaluation Team (RSET) classifies these phthalates as a low priority ("Level 3") for bioaccumulation concern (Corps et al. 2006).
- **Summary.** LPAHs and HPAHs will be carried forward based on exceedances of ecological criteria. PCBs will be carried forward based on exceedances of human health criteria. Higher molecular weight phthalates (i.e., those with detected concentrations in the catch basins) will be retained in spite of a less reliable basis for the bioaccumulative SLVs for these compounds.

5.5 Step 1 – Bank Soil Comparison to SLVs

Table 7 provides a comparison of river bank surface soil data with SLVs for protection of aquatic organisms and human health (fish consumption and drinking water). The surface soils on the river bank of the Site represent soil that could erode or slough directly into the river.

No river bank soil samples exceeded any of the ecological or human health screening criteria for any COIs. As a result, this is an insignificant exposure pathway and will not be considered further.

5.6 Step 2 – Evaluation of SCM Effectiveness

MOCC has implemented a number of stormwater SCMs, as described in this section. The effectiveness of the SCMs will be evaluated using time-series charts of NPDES monitoring data to identify trends of reducing concentrations over time (see Table 8 and Appendix B).

5.6.1 Description of Source Control Measures (SCMs)

Following is a list of SCMs that are being implemented at the Site to help control stormwater quality:

- **Catch Basin Cleaning.** MOCC conducts annual cleaning of all stormwater catch basins on the Site, including those located on the Brenntag facility.
- **Inlet Protection.** Catch basins are protected with bio bags and fabric filter inserts to reduce the sediment load to the storm drain. Note that catch basin sediment samples S-1 and S-2, as described in Section 5.4, are typically collected from retained solids that did not pass through the filter.
- **Retrofit of Catch Basin S-3.** Catch basin S-3, with emergency shut-off valve, was retrofitted in Fourth Quarter 2005 to accept filter fabrics, as shown in the photo on Figure 5.
- **Monitoring of Oil-Water Separator.** MOCC monitors the effluent flows from the oil-water separator at sampling location S-4 (see Figure 4). MOCC also collects discrete samples under a NPDES 1200Z permit .

5.6.2 Analysis of Stormwater Quality Trends

More than a decade of NPDES monitoring data (from 1995 to the present) were analyzed to identify trends in contaminant concentrations, in particular, reducing trends that would indicate MOCC's SCMs are having a beneficial effect on stormwater quality. A least-squares regression analysis was performed on the logarithms of the data (assuming an approximate lognormal distribution), which is the equivalent of an exponential decay function. Standard regression statistics were used to determine if the slope of the regression line was significantly different from zero (i.e., the null hypothesis is there is no change in stormwater quality over time). If a significant reducing trend was observed for a particular pollutant, the percent reduction in concentration in 10 years time was calculated. Time trend plots are compiled in Appendix C.

The results of the regression analysis are summarized below and in Table 8:

- **Total Suspended Solids (TSS).** Reducing trends in TSS concentrations at stations S-1 and S-3 were determined to be statistically significant. In a 10- year period, TSS percent reductions of 69 to 76 percent were estimated.
- **Metals.** Reducing trends in copper concentrations at station S-3, and reducing trends in lead concentrations at stations S-1 and S-3 were determined to be statistically significant. In a 10-year period, percent reductions of 64 to 84 percent were estimated for copper, and better than 90 percent reduction for lead at both stations. In addition, reducing trends in zinc were significant at a slightly reduced confidence level (93 to 94 percent confidence), resulting in estimated percent reductions of 49 to 54 percent.
- **Oil and Grease.** Although time trends in oil and grease concentrations were not statistically significant, a qualitative inspection of the time series plot indicates some improvement has occurred (see Appendix C). In particular, there has been a reduction in the number and magnitude of peak oil and grease concentrations. Between 1999 and 2004, there were seven reports of oil and grease concentrations between 15 and 30 mg/L, but from 2004 to the present, there have been no concentrations greater than 15 mg/L. Also, a statistically significant reducing trend in chemical oxygen demand (COD) was observed at station S-3, suggesting concentrations of organic (oxygen-demanding) substances are being controlled.

The regression analysis provides quantitative evidence that concentrations of TSS, metals, and to some degree organic constituents are decreasing over time in response to the SCMs that have been implemented at the Site. Control of TSS, in particular, is expected to provide added benefits for other contaminants that are associated with suspended sediments, such as particulate-bound metals and hydrophobic organics (e.g., HPAHs, DEHP).

5.7 Step 3 – Comparison with Data from Other Comparable Sites

Portland Harbor stormwater and storm sediment data from the LWG Round 3A and 5B sampling program is compiled in Tables 9 and 10, respectively (Anchor and Integral 2008). These data are compared to reported concentrations at the MOCC facility for COIs that were

previously shown to be above relevant SLVs during the screening evaluation. The following summary statistics for heavy industrial land use sites were compiled:

- 50th Percentile Concentration (Median)
- Arithmetic Mean Concentration
- 90th Percentile Concentration

5.7.1 Stormwater Comparison

The following results are evident from inspection of Table 9.

- **Metals.** There are a few monitoring events where concentrations of dissolved cadmium, copper, or zinc are above the mean values for heavy industrial land use; however, these instances are relatively uncommon. However, the Site-wide mean concentrations for stormwater metals data at the MOCC facility are well below the corresponding mean values for Portland Harbor in every case. Typically the Site-wide mean concentration is about 10 to 50 percent of the Portland Harbor mean.
- **Organics.** In a few monitoring events (five out of 20), the concentrations of some LPAH compounds were above the Portland Harbor mean or 90th percentile values. However, the Site-wide mean concentrations for stormwater LPAH data at the MOCC facility are typically at or below the corresponding mean values for Portland Harbor, for every constituent except fluorene. The Site-wide mean concentration for HPAHs is typically an order of magnitude lower than comparable Portland Harbor sites. Site-wide mean phthalate and methylated phenol concentrations are also lower than normal for this type of land use.

In summary, comparison of MOCC stormwater data with comparable industrial sites in the Portland Harbor shows substantially lower concentrations (typically, two to ten times lower) at the MOCC Site. This provides evidence that the SCMs being implemented at the Site result in stormwater quality that is generally above the standard of practice for the Portland Harbor.

5.7.2 Catch Basin Sediment Comparison

The following results are evident from inspection of Table 10.

- **Metals.** There are a few monitoring events where catch basin sediment concentrations of arsenic, chromium, and lead are above the mean values for heavy industrial land use, but overall, Site-wide mean concentrations are at or below those typically reported for this type of land use. Site-wide mean values for arsenic, lead, and nickel are similar to those observed at other heavy industrial sites, and Site-wide mean values for all other metals are lower than normal.
- **Organics.** In general, LPAH and HPAH compounds at the Site are unusually low for heavy industrial sites in the Portland Harbor. There is one unusually elevated fluorene concentration from the first round of catch basin sampling at Station S-3, but fluorene has subsequently decreased by almost two orders of magnitude in subsequent rounds. More typically, the Site-wide mean concentrations for PAH compounds are an order of magnitude lower than those reported at comparable industrial sites. The profile of phthalate compounds at the Site appears to be somewhat unusual, with elevated concentrations of butyl benzyl phthalate and di-n-octyl phthalate. However, Site-wide concentrations of DEHP, the most toxic of the phthalates from a human health perspective, is well below average.

In summary, comparison of MOCC catch basin sediment data with comparable industrial sites in the Portland Harbor shows concentrations that are at or below those normally observed for this type of land use. In particular, concentrations of LPAH and HPAH compounds are substantially lower than the mean values for Portland Harbor, typically about 10 times lower. This provides evidence that the SCMs being implemented at the Site result in catch basin sediment quality that is generally comparable or better than the industrial standard for the Portland Harbor.

5.7.3 Groundwater Loading Analysis for Arsenic

Arsenic concentrations in Site groundwater are below aquatic life criteria, but above human health criteria based on fish consumption and drinking water (see Table 6), prompting further evaluation. This section compares arsenic concentrations and loads at the Site with those derived from naturally occurring volcanic soils in western Oregon. These natural sources contribute significant quantities of arsenic to the Willamette River

via erosion, runoff, and groundwater seepage, which are then transported to the Portland Harbor at the bottom of the watershed.

Although a database of shoreline groundwater concentrations in Portland Harbor is not available, Site groundwater concentrations may be compared to a more regional U.S. Geological Survey (USGS) study of arsenic concentrations in Willamette Valley groundwater (USGS 1999). Willamette Valley groundwater has anomalously high arsenic concentrations, routinely above the drinking water MCL of 10 µg/L; the 78th percentile arsenic concentration is 10 µg/L and the 92nd percentile arsenic concentration is 50 µg/L. Site groundwater concentrations in some monitoring wells (EX-2 and EX-3, in particular, which range from 57 to 90 µg/L) are higher than the 90th percentile concentration for the Willamette Valley.

To further assess the impact that Site groundwater discharges may have on the Willamette River, a mass loading analysis was conducted. The annual mass load of arsenic was calculated for Site groundwater discharges and compared to the annual mass load contributed from background arsenic concentrations in transport down the Willamette River.

The inputs to the mass loading analysis include the following:

- **MOCC Groundwater Discharge Volume.** The mean groundwater gradient in the shoreline area of the Site is 0.025 (range from 0.01 to 0.05) and the geometric mean hydraulic conductivity is 0.013 feet/minute (range from 0.003 to 0.16 feet/minute). The length of the shoreline is approximately 1,500 feet and the saturated thickness of the shallow water-bearing zone (i.e., in the fill sands overlying native alluvium) is approximately 10 feet.
- **Mean Annual Willamette River Discharge.** The mean annual discharge in the Willamette River from 1973 to the present is about 33,000 cfs, according to the USGS Portland gage #14211720 (<http://waterdata.usgs.gov/nwis>).
- **Mean Groundwater and River Concentrations.** The mean concentration of arsenic in Site groundwater is 26 µg/L (see Table 6), and the background concentration in the Willamette River is 2 µg/L (DEQ 2002).

The volumetric flux from each source (in volume/time, e.g., cfs) times the mean concentration of each source (in mass/volume, e.g., $\mu\text{g/L}$), with appropriate conversion factors, yields the mass load (in mass/time, e.g. kg/yr). The calculated mass load of arsenic in transport down the Willamette River is 59,000 kg/yr, and the mass load of arsenic from Site groundwater discharges is 1.9 kg/yr. Site groundwater contributes about 0.003 percent of the background load for arsenic, a negligible contribution to the arsenic budget in the river.

5.8 Step 4 – Evaluation of Site-Related Impacts to the Willamette River

The statistics and data plots compiled in Tables 3a, 3b, and Appendix B provide a summary of sediment quality and tissue quality data in Portland Harbor upstream, downstream, and adjacent to the Site for a representative list of COIs. Sediment and tissue sample locations are shown in Figure 4 and Appendix B. The spatial distribution patterns of these COIs in the river is analyzed for evidence of correlations that may suggest a pathway linking Site sources and COIs to adjacent impacts in the river. The following observations are derived from this analysis:

- **Metals.** Arsenic and chromium concentrations in river sediment adjacent to the Site are within the range of background values, and copper is just slightly above the range. Copper and zinc concentrations are well below PEC values and very close to conservative TEC values (TEC = 32 and 121 mg/kg, respectively; McDonald et al. 2000). Metals concentrations adjacent to the Site are not differentiable from upstream concentrations.
- **PAHs.** Total PAH concentrations in river sediment adjacent to the Site are well below the PEC value, and below the very conservative TEC value in all but one sample (TEC = 1,610 $\mu\text{g/kg}$; McDonald et al. 2000). PAH concentrations adjacent to the Site are also lower than concentrations observed both upstream and downstream of the Site.
- **PCBs.** Total PCB concentrations in river sediment adjacent to the Site are well below the PEC value, and below the very conservative TEC value in a majority of samples (TEC = 60 $\mu\text{g/kg}$; McDonald et al. 2000). Total PCB concentrations adjacent to the Site are also lower than concentrations observed both upstream and downstream of the Site.

- **Other Constituents.** Other SVOCs (dibenzofuran, 4-methylphenol, and two phthalates) exhibit similar spatial distribution patterns. In general, there is no evidence that Site sources have resulted in any anomalous enrichments of these chemicals in the adjacent river, relative to upstream and downstream concentrations. PEC values are not available for these constituents.
- **Sediment Sample S3-01C.** River sediment sample S3-01C was collected at low water level just below the outfall for the S-3 storm drain (see Figure 4 and Table 7). All metals were within the range of background concentrations, and all other constituents were orders of magnitude below ecological and human health screening levels. Thus, there is no evidence that discharges from outfall S-3 have impacted the river.
- **Bioassays.** A suite of three bioassay tests were conducted at three sampling stations adjacent to the Site (G401, G403, G413; see Tables 3 and 4). All tests showed no effects on benthic organisms at all three stations.
- **Tissue Contaminant Residues.** Contaminant residue concentrations in the tissues of river organisms and laboratory bioaccumulation test organisms show that metals concentrations adjacent to the Site are similar to upstream concentrations and harbor-wide mean values, while the concentrations of organic contaminants (PAHs and PCBs) adjacent to the Site are consistently lower than upstream concentrations and harbor-wide mean values (see Table 3b).

In summary, in consideration of sediment quality SLVs, combined with the spatial distribution patterns of sediment and tissue concentrations upstream, downstream, and adjacent to the Site, there is no evidence that sediment quality or tissue contaminant residues in the river have been impacted by current or historical discharges from the Site.

6 SUMMARY OF RISK SCREENING EVALUATION

A summary of the relevant decisions and conclusions of the risk screening evaluation and pathway analysis is provided below.

6.1 Step 1 – Comparison to SLVs

6.1.1 Stormwater

Copper, lead, and zinc were carried forward for further evaluation on the basis of ecological risk. HPAHs were carried forward based on exceedances of fish consumption criteria in several samples.

6.1.2 Groundwater

No metals in groundwater were carried forward on the basis of ecological risk. However, arsenic was evaluated further based on exceedances of human health criteria (fish consumption and drinking water). Carcinogenic PAHs were carried forward based on occasional exceedances of human health criteria.

6.1.3 Catch Basin Sediment

All metals except manganese and silver were carried forward for further evaluation based on exceedances of ecological SLVs, human health SLVs, or both. LPAHs and HPAHs were carried forward based on exceedances of ecological criteria, and PCBs based on exceedances of human health criteria.

6.1.4 Bank Surface Sediment

No river bank soil samples exceeded any of the ecological or human health screening criteria for any COIs. As a result, this was determined to be an insignificant exposure pathway and was not considered further.

6.2 Step 2 – Evaluation of SCM Effectiveness

Over 10 years of NPDES monitoring data was statistically analyzed using least-squares regression techniques. This analysis provides quantitative evidence that concentrations of TSS, metals, and to some degree organic constituents (i.e. COD, as well as diminishing peak concentrations of oil and grease) are decreasing over time in response to the SCMs that have

been implemented at the Site. Control of TSS is expected to provide added benefits for other contaminants that are associated with suspended sediments, such as particulate-bound metals and hydrophobic organics (e.g., HPAHs, DEHP, etc.).

6.3 Step 3 – Comparison with Data from Other Comparable Sites

Comparison of Site stormwater data with comparable industrial sites in the Portland Harbor shows substantially lower concentrations (i.e., two to ten times lower) at the Site compared to those typically observed for this land use. Similarly, catch basin sediment data at the Site is generally at or below concentrations from other industrial sites. These comparisons provide evidence that the SCMs being implemented at the Site result in stormwater and storm sediment quality that is generally comparable or better than the industrial standard for the Portland Harbor.

6.4 Step 4 – Evaluation of Site-Related Impacts to the Willamette River

Sediment concentrations of COIs in the Willamette River adjacent to the Site are well below PEC values and in many cases near or below TEC values and background concentrations. Bioassay tests at three locations showed no effects on benthic organisms. Sediment concentrations adjacent to the Site are similar or lower than those observed at locations directly upstream. Similarly, contaminant residue concentrations in the tissues of river organisms and laboratory bioaccumulation test organisms show that metals concentrations adjacent to the Site are similar to upstream concentrations and harbor-wide mean values, while the concentrations of organic contaminants (PAHs and PCBs) adjacent to the Site are consistently lower than upstream concentrations and harbor-wide mean values. In combination, these observations provide a consistent weight of evidence that current or historical discharges from the Site have not caused any substantive impacts to sediment quality or tissue contaminant residues in the river.

6.5 Summary

In summary, the weight of evidence established during the source control screening evaluation shows that SCMs have been effective at reducing contaminant loads from the Site. Site stormwater quality is better than average for heavy industrial land use, there is no evidence of impacts to Willamette River sediments or tissue residues from Site discharges, and in general, source control is in place at this facility. Furthermore, MOCC's NPDES

stormwater permit will ensure that source controls remain functional and effective in the foreseeable future. Therefore, we respectfully request that DEQ issue a favorable Stormwater Source Control Decision for this Site.



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TABLES

Table 1
McCall Oil & Chemical Corporation
Summary of Historical Spill Releases – McCall

Spill No.	Dates	Material Released	Location	
1	1955-80	Medium cure (MC) products (containing kerosene distillates); Rapid cure (RC) products (containing petroleum naphthalene); stove oil; all used to manufacture asphalt cold-patch.	Douglas Asphalt Plant	Approximately 4 or 5 spill incidents involving 4,000 to 10,000 gallons per incident occurred in this area prior to the construction of the lube oil tank farm in 1982. Typically, the spilled product was recovered to the extent practicable, and the waste materials would be collected in 55-gallon metal drums and sent to St. John's Landfill.
2	Mid-1960's	MC-250; MC-products contain kerosene distillates; MC-250 is 25% stove oil and 75% paving-grade asphalt.	Douglas Asphalt Plant	Operator error during the routine transfer of MC-250 resulted in the release of approximately 8,000 to 10,000 gallons of MC-250 into the aboveground storage tank containment area at the Douglas MC plant. The MC-250 remained a homogeneous mixture as it quickly cooled and hardened. The usable material was recovered using jackhammers and shovels. Unusable spilled material was sent to the St. John's Landfill.
3	Mid-1970's	Oil and water	Marine Terminal Slop Tank	The slop tank valve was inadvertently left open and an unknown quantity of oil and water was released into the Willamette River.
4	1982	Lube oil	McCall Lube Oil Plant	The lube oil plant was constructed in 1982. During construction, a lube oil spill occurred resulting in the release of an unknown quantity of lube oil into the aboveground storage tank area. Lube oil was recovered to the extent practical using a vacuum truck.
5	1955-80	Re-refined oil	Marine Terminal Tanks 10 and 7	The re-refined oil line between tanks 7 and 10 in the McCall Terminal leaked as a hose was disconnected from a product-transfer truck, resulting in the release of a small quantity (<25 gallons) of oil onto the surrounding soil. All visibly stained soil was excavated and disposed in an off-site landfill. The oil was nearly solid at ambient temperature.

Table 1
McCall Oil & Chemical Corporation
Summary of Historical Spill Releases – McCall

Spill No.	Dates	Material Released	Location	
	Mid-1970's	Asphalt	Marine Dock	
7	Early-1980's	Bunker Fuel	Marine Terminal Tank 6	The bunker fuel tank (Tank 6) at the McCall Terminal was overfilled, resulting in the release of approximately 100 gallons of bunker fuel onto the surrounding soil. The spill was immediately cleaned up and all visibly stained soil was excavated and disposed at Hillsboro landfill.
8	1984	Bunker Fuel (#6 fuel oil, marine fuel or industrial fuel oil)	Asphalt Plant Tank 20	Approximately 800 barrels of bunker fuel was released at the McCall asphalt plant due to a tank manhole cover left open during tank filling operations. The Oregon DEQ was notified and cleanup operation were conducted by Environmental Pacific.
9	1985	Caustic soda	Asphalt Plant	Tanker truck at the former loading rack (currently the asphalt loading rack) contained caustic soda. Tanker truck overfill resulted in the release of approximately 60 gallons of caustic soda.
10	1989	Oil and water	Marine Terminal Slop Tank	The contents of the slop tank overflowed and an unknown quantity of oil and water was released onto the ground. Visibly impacted soils were removed immediately following the incident.
11	1989	Asphalt	Asphalt Plant Tank 24	Approximately 200 gallons of asphalt were inadvertently released from Tank 24. The spilled asphalt was collected using jackhammers and shovels and disposed of at an off-site landfill. Cleanup conducted by NW Field Services.
12	Unknown	Asphalt flux	Flintkote	Small shipments (i.e., 1-2 truckloads) of asphalt flux overfilled on several occasions. The quantity is estimated to be small, but occurred periodically. The material was cleaned up following each incident.
13	1991	Asphalt	Marine Dock	A hose barge burst during asphalt loading operations at the new marine dock resulting in the release of an unknown quantity of asphalt into the river.
14	1983	Water and emulsified asphalt	Marine Terminal	Emulsified asphalt was sprayed onto the soil berm surrounding the aboveground storage tank farm at the McCall Oil terminal to prevent berm erosion. Following the

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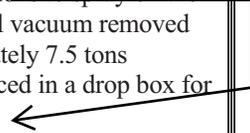
**Table 1
McCall Oil & Chemical Corporation
Summary of Historical Spill Releases – McCall**

Spill No.	Dates	Material Released	Location	
				application of asphalt, rain ensued prior to the asphalt hardening, resulting in storm water discharge containing trace amounts of asphalt.
15	1991	Bunker Fuel	Asphalt Plant Railcar Loading Area	A railcar tank bleeder-valve handle was inadvertently opened during product transfer operations and approximately 20 gallons of bunker fuel was released onto the surrounding soil during a period of heavy rainfall. Absorbent pads were immediately placed on the standing water and soil impacted with bunker fuel. No subsequent soil excavation was required.
16	1975-82	Oil and Water	Marine Terminal Slop Tank	Two separate spills of diesel fuel from slop Tank 12 occurred during this period. Approximately 50 gallons of oil and water were released during each incident. While skimming the oil water separator, the operator left the skimmer unattended and overfilled a tank.
17	10/13/98	Diesel Fuel	Oil Water Separator	Oil and water Spill OERS No. 98-2471. Temporary blockage of outlet for new separator resulted in light sheen on river. Estimate less than 2 gallons of diesel.
18	11/19/99	Bunker Fuel	Rail tank car	Rail tank car overflow during offloading. Foss Environmental removed 11 drums soil and ballast. Estimated 85 gallons released.
Spill No.	Dates	Material Released	Location	
19	7/16/95	RFO Bunker Blend	Marine Terminal	A flange gasket cracked and split, allowing oil to seep by it under the pressure of the positive displacement pump. Estimated 50 gallons released and recovered.
20	1/12/90	Reclaimer motor oil	Lube tank farm area	A camlock fitting came loose during delivery pump off. Oil absorbent applied immediately. NW Field Services vacuumed standing oil, dug out oil, stained fill/absorbent. Estimated 200 gallons spilled onto area paved with asphalt and recovered.
21	8/10/90	Asphalt Mix Oil	Asphalt Plant/NW Front Avenue	Spill occurred as customer truck departed the facility. Product drained into storm drain on Front Avenue in sufficient volume to react with storm water and boil over.

Table 1
McCall Oil & Chemical Corporation
Summary of Historical Spill Releases – McCall

located inside berm area ar

Spill No.	Dates	Material Released	Location	
22	10/4/00	Bunker Fuel	Marine terminal near 10" flow meter	Spill occurred when the casing of a 10" f Pipeline pressure caused 250 to 300 gallo ground near meter. Foss Environmental vacuum removed five 55 gallon drums of oil. Approximately 7.5 tons contaminated soil was removed and placed in a drop box for landfill disposal .
23	10/1/05	Asphalt Flux	Asphalt Plant	Approximately 300 gallons of asphalt flux was spilled to a failed gasket on a flange. Spill was contained and recovered.
24	8/7/06	Diesel	Marine Terminal	15 gallons of fuel was released to the water during fueling of a barge. The spill was boomed, contained, and recovered.
25	5/10/07	Asphalt	Loading Rack	Approximately 200-300 gallons of asphalt was released during truck loading operations. Spill was contained and recovered.
26	5/15/07	Diesel	Loading Rack	Approximately 200 gallons of fuel was released to the ground due to a truck overfill. Spill was contained and recovered.
27	11/06/07	Diesel	Marine Terminal	Approximately 50 gallons of fuel spilled on a tug during fueling. Booms were deployed and the release was contained and cleaned up.



**Table 2
Brenntag Pacific (former site of Great Western Chemical Corporation)
Summary of Historical Spill Releases**

Number	Dates	Material Released	Location	Description
1	1988 or 1989?	H ₂ SO ₄	On blacktop (drumming area)	A drum of H ₂ SO ₄ split open. Spill was diked and cleaned up with sorbent material.
2	?	CO630 (surfactant)	Railcar loading area	Release during tank car offloading - cleaned up.
3	?	H ₂ SO ₄	Acid tank farm	Valve apparently left open; quantity unknown, but spill contained within bermed area.
4	1987 or 1988?	H ₂ SO ₄	Acid tank farm	Bottom of tank corroded, approximately 20,000 gallons spilled into bermed area. Acid was pumped into trucks and tanks were repaired and raised onto pads.
5	?	Rinsate	Drum rinse area	Rinsate from acid drum rinsing operations occasionally flowed onto unpaved area..
6	?	Calgon Cat-Floc	Technical Center railcar loading area	Several incidental spills, cleaned up and put into totes.
7	1990	1,1,9-Triethylamine	Portland Branch railcar loading area	Railcar leaked over the weekend in the loading area. Soil was tested by Hahn & Associates. No further action required. No detections. Amount of spill was below the reportable quantity limit.
8	1984 (?) - 1988	CuSO ₄	CUSO ₄ containment structure	Crack in the concrete CuSO ₄ containment structure was discovered during decommissioning activities. Soil was overexcavated beneath the structure and soil and concrete were disposed of off-site at Chemical Waste Management hazardous waste landfill at Arlington, Oregon.
9	1984 (?) - 1989	CCA	CCA process area	A prior release was discovered in 1992 during excavation in the former CCA Process Area. Soil and concrete were excavated and confirmation samples were collected from the excavation. Concrete and soil were disposed of off-site at Chemical Waste Management hazardous waste landfill at Arlington, Oregon. Groundwater monitoring continues.
10	1/21/99	Sodium hydroxide (caustic soda)	Storage yard	Tote bin of caustic soda fell from forklift. Contents released onto asphalt pavement drainage ditch. Spill diked and fully contained; no release to land or water. All materials cleaned up. Estimated 2,000 lbs. of combined material and absorbent material.
11	4/28/93	Diesel Fuel	Parking lot	A distributor was operating a truck and backed over a stake on the RR grade, puncturing the diesel tank. Estimated 30 gallons was spilled onto asphalt-paved parking area. All materials thoroughly cleaned up – no release to land or water.
12	3/26/96	Sulfuric acid	Acid loading rack	A driver was filling his tanker truck with no gauges, resulting in an overflow of

**Table 2
Brenntag Pacific (former site of Great Western Chemical Corporation)
Summary of Historical Spill Releases**

Number	Dates	Material Released	Location	Description
				product. Estimated 150-200 gallons was spilled in contained area. All materials cleaned up – no release to land or water.
13	6/24/99	Sulfuric acid	GWEM receiving dock	Drum slipped from drum pick, dropping 12-18". Drum split open; 55 gallons of product splashed onto receiving dock. Spill cleaned – no release to environment.
14	5/19/99	Sulfuric acid	GWEM warehouse	Drum slipped off the drum pick while being lifted causing release of 500 gallons of product onto floor. Spill cleaned – no release to environment.
15	4/26/00	Sulfuric acid	Tank farm	Contractor dropped pipe onto valve resulting in leakage of product onto graveled area adjacent to the truck scale. Foss Environmental excavated materials and performed confirmation sampling. Estimated release of 70 gallons.
16	8/5/98	Lacquer thinner	Warehouse	Forklift pierced bottom of drum resulting in release of approximately 25 gallons of product onto warehouse floor. Product was contained and absorbed. No release to the environment.
17	9/22/98	Sodium hypochlorite	GWEM Warehouse	A tote ruptured while being moved to the trailer. Approximately 220 gallons of product was spilled. Material was contained with absorbent. No release to the environment.
18	1/7/99	pH water	Storage yard	A hose ruptured during pumpdown of one of the pH pumps. Unknown quantity ran into the asphalt trench. Drainage valves were closed – no material reached the river. Ditch was hosed down, materials were pumped into a tote and returned to remediation tank.
19	3/1/99	Lubricat	Tech Center loading bay	Tote overturned causing release of 200 gallons of product onto paved truck area. Sewer hole was covered immediately. Material was absorbed. No release to tank or water.
20	3/21/96	Naphtha solvent	Rail tank car	A gasket leaked while unloading a railcar. Salvaged product was pumped into recovered drums. Estimated 40 lbs released and recovered.

Table 3a
Comparison of Portland Harbor Sediment Quality
Upstream, Downstream, and Adjacent to Site
Portland, Oregon

			Total LPAHs (ug/kg)	Total HPAHs (ug/kg)	Total PAHs (ug/kg)	Arsenic (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Zinc (mg/kg)	Dibenzo-furan (ug/kg)	4-Methyl-phenol (ug/kg)	Butylbenzyl phthalate (ug/kg)	Di-n-octyl phthalate (ug/kg)	Total PCBs (ug/kg)	Bioassay Result ⁽¹⁾						
		Downstream	G369	7.50	31	192	223	4.3	36	41	109	1.3	12	1.85	U	1.50	U	20	PASS		
			G377	7.55	13	120	133	2.9	23	16	75	0.39	4	1.05	U	0.85	U	0.9			
			G374	7.60	33	218	251	4.6	35	41	110	1.2	18	5.5	U	1.4	U	23			
			G389	7.65	1	2	3	1.9	25	16	52	0.13	U	2.2	U	1.2	U	0.9		U	2.7
			G381	7.68	87	238	325	4.5	34	42	175	2.8	15	1.5	U	1.2	U	85		CM HIT	
			G394	7.73	3,290	1,800	5,090	4.2	39	50	244	52	ND	U	ND	U	ND	U			703
			G401	7.79	674	3,560	4,234	4.5	30	36	140	17	15	U	7.5	U	40	U		36	PASS
		McCall	G404	7.80	225	1,020	1,245	4.2	34	40	120	12	16	1.5	U	15	U	27	PASS		
			C532	7.81	256	546	802	5.0	37	54	170	8.5	110	7.5	U	6.0	U	141			
			G391	7.82	41	188	229	4.5	41	46	126	1.9	11	4.4	U	1.4	U	13			
			G399	7.84	359	1,900	2,259	5.4	28	32	105	5.5	26	1.3	U	1.0	U	25			
			G403	7.88	69	143	212	3.7	15	16	72	1.1	2	U	1.0	U	0.8	U		2.4	
			G407	7.97	51	288	339	3.6	34	38	124	2.4	23	5.6	U	1.3	U	97			
			G410	8.01	29	118	147	4.1	37	41	116	1.2	14	1.9	U	1.5	U	22			
		G413	8.03	13	104	117	2.4	17	28	142	0.52	6	1.1	U	0.9	U	51	PASS			
		Upstream	G418	8.11	31	150	181	4.2	40	46	137	1.8	200	>	6.2	U	1.6	U	14	PASS	
			G422	8.15	229	419	648	3.8	34	40	205	5.2	38	1.4	U	1.1	U	84			
			G423	8.21	22	148	170	4.4	35	46	186	1.1	17	1.8	U	1.5	U	49			
			G427	8.30	74	240	314	4.1	34	48	160	3.9	21	1.7	U	1.3	U	80			
			G431	8.32	490	3,600	4,090	2.9	26	75	167	14	5	U	16.0	U	2.1	U	127		
			G432	8.33	565	2,550	3,115	3.8	36	81	343	19	13	U	6.5	U	24	U	590		
			G434	8.35	1,420	7,200	8,620	4.1	28	47	189	11	47	6.5	U	5.5	U	245			
			G437	8.40	113	553	666	3.7	27	44	157	4.4	37	1.4	U	1.2	U	56			
			G439	8.43	200	1,320	1,520	3.4	34	36	124	7.1	25	12.0	U	1.1	U	47			
			G436	8.46	19	78	97	8.7	13	13	41	1.5	1.80	U	10.0	U	0.8	U	4.3		
Background Values:							7.0	42	36	86											
JSCS PEC Values:					22,800	33	111	149	459									676			
Mean Downstream (RM 7.5-7.8)			590	876	1,466	3.8	32	35	129	10.7	11	3.1	7.6	124							
Mean Adjacent (RM 7.8-8.1)			130	538	669	4.1	30	37	122	4.1	26	3.0	3.5	47							
Mean Upstream (RM 8.1-8.5)			316	1,626	1,942	4.3	31	48	171	6.9	40	6.3	4.0	130							
Harbor-wide Mean value			25,800	34,500	60,000	4.2	32	54	139	283	78	73	155	216							
Median Downstream (RM 7.5-7.8)			33	218	251	4.3	34	41	110	1.3	13	1.7	1.3	23							
Median Adjacent (RM 7.8-8.1)			51	188	229	4.2	34	40	124	1.9	16	1.9	1.4	25							
Median Upstream (RM 8.1-8.5)			157	486	657	4.0	34	46	164	4.8	23	6.4	1.4	68							
Harbor-wide Median Value			149	832	1,010	3.7	31	39	109	4.4	16	12	38	29							

Notes:

(1) Includes Level 1 results for *Chironomus* mortality (CM), *Chironomus* Growth (CG), and *Hyalella* Mortality (HM) endpoints

U = Undetected constituent; reporting limits have been halved for statistical calculations

ND = No data; detection limits have been elevated beyond usability due to matrix interference

**Table 3b
Comparison of Portland Harbor Tissue Quality
Upstream, Downstream, and Adjacent to Site
Portland, Oregon**

	Count	LPAHs ug/kg	HPAHs ug/kg	As mg/kg	Cr mg/kg	Cu mg/kg	Zn mg/kg	PCB 77 pg/g	PCB 81 pg/g	PCB 105 pg/g	PCB 114 pg/g	PCB 118 pg/g	PCB 123 pg/g	PCB 126 pg/g	PCB 167 pg/g	PCB 169 pg/g	PCB 189 pg/g	
Field Clams																		
Mean Up	3	100	237	0.94	0.58	9.1	41	552	20	2950	183	11310	206	16	745	5.3	23	
Site	1	23	113	0.95	0.65	9.4	31	141	2	987	62	3910	69	7	343	2.6	10	
Mean Downstream	7	188	1618	0.95	0.63	9.9	31	132	4	1032	60	3930	74	9	344	2.8	13	
Harborwide mean		72.4	564	0.94	0.668	9.9	36.2	225	9.23	1720	100	7530	137	14.6	903	15.6	47.5	
Harborwide 95th %		240	1060	1.06	0.92	11.6	46.9	609	20.5	4980	333	18900	326	27	1250	25.7	89.8	
Lab Clams																		
Mean Up	3	70	351	0.45	0.20	3.9	14	123	6	724	48	2818	60	5	232	0.9	2	
Site	1	7	38	0.37	0.21	3.1	12	32	1	304	17	1810	40	3	196	0.7	1	
Mean Downstream	5	9	28	0.39	0.21	3.6	14	204	6	1000	59	3770	75	7	256	0.7	4	
Harborwide mean		NA	NA	0.426	0.222	3.8	13.6	67.4	2.91	488	28.6	2340	47.9	4	218	1.6	3.06	
Harborwide 95th %		NA	NA	0.541	0.33	4.7	15.4	224	8.01	1140	64.6	4750	90.7	8.47	306	2.7	6.97	
Lab Worm																		
Mean Up	2	1771	11392	1.37	0.49	2.2	26	1302	67	5799	528	11390	337	32	255	3.9	56	
Site	1	87	588	1.94	0.63	2.1	28	325	9	1700	123	5010	95	14	238	2.0	59	
Mean Downstream	5	153	675	1.28	0.70	2.3	27	4563	179	15420	1143	41427	717	59	1119	7.3	163	
Harborwide mean		NA	NA	1.19	0.59	2.9	26.2	1020	43.8	5630	361	14600	282	33.7	700	23.2	191	
Harborwide 95th %		NA	NA	1.94	0.78	3.3	30.7	5780	311	24700	2360	44300	1470	118	2010	49.8	350	
Crayfish																		
Mean Up	2	143	246	0.33	0.61	14.4	17											
Site	1	116	165	0.28	0.38	10.4	14											
Mean Downstream	5	116	165	0.35	0.27	14.3	17											
Sculpin																		
Mean Up	2	135	145	0.19	0.06	1.4	15											
Site	1	98	140	0.19	0.04	1.5	16											
Mean Downstream	4	159	151	0.17	0.20	1.4	17											
Notes:	NA = Not Available																	

Table 4
LWG Bioassay Testing Results
McCall Oil and Chemical

Table 4.1
Results of *Hyalloella azteca* Mortality Test

Bioassay Station ID	Bioassay Type	Bioassay Variable	Mean survivorship	Mean Percent Mortality
Control	HYA28	Mortality	9.875	1.25
G401	HYA28	Mortality	9.625	3.75
G403	HYA28	Mortality	9.625	3.75
G413	HYA28	Mortality	9.875	1.25

Table 4.2
Results of *Chironomus tentans* Mortality Test

Bioassay Station ID	Bioassay Type	Bioassay Variable	Mean Survivorship	Mean Percent Mortality
Control	CHR10	Mortality	9.500	5.00
G401	CHR10	Mortality	9.375	6.25
G403	CHR10	Mortality	9.125	8.75
G413	CHR10	Mortality	9.375	6.25

Table 4.3
Results of *Chironomus tentans* Growth Test

Bioassay Station ID	Bioassay Type	Bioassay Variable	Mean Growth
Control	CHR10	Growth	1.08
G401	CHR10	Growth	1.01
G403	CHR10	Growth	1.07
G413	CHR10	Growth	1.15

Table 5
Risk Screening Evaluation of Site Stormwater
McCall Oil and Chemical

	JCS (2007) Screening Levels and Other Criteria							Site Stormwater Concentrations																							
	Aquatic Life Criterion	Reference	Drinking Water Criterion	Reference	Fish Consump. (17.5 g/day)	Reference	Willamette R. Background (g)	NPDES 1200-Z Permit Limit (h)	Mean Site-Wide	S-1	S-1	S-1	S-1	S-2	S-2	S-2	S-2	S-2	S-3	S-3	S-3	S-3	S-3	S-4	S-4 Dupe	S-4	S-4	S-4	S-4		
										12/20/00	03/06/02	04/07/05	11/12/07	12/20/00	03/06/02	04/07/05	05/02/07	11/12/07	12/15/00	03/06/02	04/07/05	05/02/07	11/12/07	12/15/00	12/15/00	04/09/02	04/07/05	05/02/07	11/12/07		
Metals (ug/L)																															
Arsenic - Total	150	e	10	a	0.140	b	2	0.51	0.5 U	0.5 U	0.5 U	0.7	1 U	0.5 U	0.5 U	0.5 U	0.8	1 U	0.5 U	0.5 U	0.5 U	0.7	--	--	0.6	0.5	1.5	1.1			
Arsenic - Dissolved	150	e	10	a	0.140	b	2	0.35	--	--	0.5 U	0.5 U	--	--	--	0.5 U	0.6	--	--	0.5 U	0.5 U	0.5	0.5 U	0.5 U	--	0.5 U	0.5 U	0.8			
Cadmium - Total	0.094	b	5	a	--	1	1	0.23	0.05 U	0.20 U	0.16	0.21	0.22	0.20 U	0.07	0.12	0.30	--	--	0.2 U	1.1	0.17	0.17	--	--	0.20	0.19	0.51	0.21		
Cadmium - Dissolved	0.094	b	5	a	--	1	1	0.21	--	--	0.07	0.07	--	--	0.05	0.05	0.10	0.63	--	0.96	0.15	0.15	0.22	0.21	--	0.09	0.16	0.01			
Chromium - Total	--		100	a	--	5.8		2.1	0.4	0.4	7.0	2.3	2.0	0.6	1.1	1.1	5.5	--	1.2	1.9	2.3	1.6	--	--	0.9	1.1	5.2	1.5			
Chromium - Dissolved	--		100	a	--	5.8		0.90	--	--	1.3	0.5	--	--	0.7	0.7	0.8	2.9	--	1.3	0.9	0.9	0.8	0.6	--	0.2	0.50	0.50			
Copper - Total	2.7	b	1,300	a	--	9	100	14	3.8	3.7	14	20	9.9	10	9.4	11.3	25.9	--	13.1	8.6	19	24	--	--	--	8.3	28	15			
Copper - Dissolved	2.7	b	1,300	a	--	9		10	--	--	7.9	9.6	--	--	6.0	8.8	8.3	30	--	7.1	13	18	4.9	4.7	9.0	4.4	14	11			
Lead - Total	0.54	b	15	a	--	13.3	400	8.5	0.43	0.31	27	10	5.9	1.1	2.3	3.2	24	--	2.3	4.1	4.9	4.0	--	--	3.3	6.2	36	9.9			
Lead - Dissolved	0.54	b	15	a	--	13.3		0.65	--	--	0.61	0.32	--	--	0.7	0.86	1.1	1.6	--	1.1	0.75	0.90	0.05	0.04	--	0.09	0.54	0.39			
Manganese - Total	120	d	--	a	100	b	150	54	--	--	--	25	--	--	--	8.4	72	--	--	--	24	23	--	--	--	--	169	55			
Manganese - Dissolved	120	d	50	a	100	b	150	19	--	--	--	0.7	--	--	--	3.3	21	--	--	--	14	19	--	--	--	--	46	27			
Mercury - Total	0.77	b	2	a	0.146	e	--	0.10	--	--	--	0.2 U	--	--	--	0.2 U	0.2 U	--	--	--	0.2 U	0.2 U	--	--	--	--	0.2 U	0.2 U			
Mercury - Dissolved	0.77	b	2	a	0.146	e	--	0.10	--	--	--	0.2 U	--	--	--	0.2 U	0.2 U	--	--	--	0.2 U	0.2 U	--	--	--	--	0.2 U	0.2 U			
Nickel - Total	16	b	730	c	4,600	b	5.5	3.3	--	--	--	2.3	--	--	--	1.2	3.8	--	--	--	2.7	2.7	--	--	--	--	6.9	3.8			
Nickel - Dissolved	16	b	730	c	4,600	b	5.5	1.9	--	--	--	0.9	--	--	--	1.2	1.2	--	--	--	1.9	2.5	--	--	--	--	2.8	3.0			
Silver - Total	0.12	e	100	a	--	0.3		0.04	--	--	--	0.02	--	--	--	0.02	0.02 U	--	--	--	0.07	0.02	--	--	--	--	0.12	0.02 U			
Silver - Dissolved	0.12	e	100	a	--	0.3		0.01	--	--	--	0.02 U	--	--	--	0.02 U	0.02 U	--	--	--	0.03	0.02 U	--	--	--	--	0.02 U	0.02 U			
Zinc - Total	36	b	5,000	a	26,000	b	38	170	200	195	87	154	113	73	51	149	353	--	84	189	375	334	--	--	87	90	252	103			
Zinc - Dissolved	36	b	5,000	a	26,000	b	38	161	--	--	48	92	--	--	43	101	184	596	--	182	301	312	47.1	45	--	46.8	201	59			
Low Molecular Weight PAHs (ug/L)																															
Naphthalene	194	f			--	--		0.02	0.03 J	0.03 J	0.03 J	0.03 J	0.07 J	0.03 J	0.01 U	0.02	0.02	0.07 J	0.03 J	0.01 U	0.01	0.02 U	0.04 J	0.04 J	0.01 U	0.01 U	0.02 U	0.02 U			
Acenaphthylene	307	f			--	--		0.02	0.01 J	0.01 U	0.04 J	0.02 U	0.02 J	0.01 U	0.03 J	0.02 D	0.02 U	0.10 U	0.01 U	0.01 U	0.01 U	0.02 U	0.10 U	0.10 U	0.01 U	0.01 U	0.01 U	0.02 U			
Acenaphthene	56	f			990	b		0.03	0.02 J	0.01 U	0.01 U	0.02 U	0.02 J	0.01 U	0.01 U	0.02 U	0.02 U	0.10 U	0.01 U	0.01 U	0.01 U	0.02 U	0.14	0.12	0.09 J	0.01 U	0.01 U	0.02 U			
Fluorene	39	f			5,300	b		0.05	0.02 J	0.01 U	0.03 J	0.02 U	0.04 J	0.01 U	0.01 U	0.02 U	0.02 U	0.02 J	0.01 U	0.01 U	0.01 U	0.02 U	0.36	0.34	0.17 J	0.01 U	0.01 U	0.02 U			
Phenanthrene	19	f			--	--		0.10	0.07 J	0.03 J	0.19 J	0.07 J	0.25	0.04 J	0.05 J	0.03	0.04	0.20	0.05 J	0.06 J	0.02	0.03	0.46	0.35	0.07 J	0.03 J	0.03 U	0.02 U			
Anthracene	21	f			40,000	b		0.01	0.01 U	0.02 U	0.04 J	0.02 U	0.02 J	0.02 U	0.02 U	0.01 U	0.02 U	0.10 U	0.02 U	0.02 U	0.01 U	0.02 U	0.02 J	0.01 J	0.02 U	0.02 U	0.01 U	0.02 U			
2-Methylnaphthalene	72	f			--	--		0.02	0.03 J	0.02 J	0.01 U	0.02 U	0.05 J	0.01 J	0.01 U	0.01 U	0.02 U	0.10 U	0.01 U	0.01 U	0.01 U	0.02 U	0.09 J	0.10	0.01 U	0.01 U	0.01 U	0.02 U			
High Molecular Weight PAHs (ug/L)																															
Fluoranthene	7.1	f			140	b		0.05	0.02 J	0.01 U	0.23	0.09 J	0.10	0.02 J	0.06 J	0.02	0.03	0.06 J	0.02 J	0.04 J	0.02	0.02	0.06 J	0.05 J	0.01 U	0.01 U	0.05	0.02 U			
Pyrene	10	f			4,000	b		0.07	0.02 J	0.02 U	0.28	0.08 J	0.12	0.03 J	0.06 J	0.02	0.03	0.03 J	0.02 J	0.04 J	0.02	0.02 U	0.19	0.16	0.10 J	0.10 J	0.08	0.03			
Benz(a)anthracene	2.2	f	0.2	a	0.018	b		0.015	0.005 U	0.012 U	0.081 J	0.031 J	0.030 J	0.013 U	0.012 U	0.008 U	0.019 U	0.007 J	0.012 U	0.012 U	0.008 U	0.019 U	0.030 J	0.020 J	0.012 U	0.012 U	0.012	0.020 U			
Chrysene	2.0	f	0.2	a	0.018	b		0.032	0.008 J	0.014 U	0.140 J	0.066 J	0.060 J	0.015 U	0.014 U	0.008 U	0.019 U	0.030 J	0.015 U	0.014 U	0.009	0.019 U	0.120	0.090 J	0.014 U	0.014 U	0.030	0.020 U			
Benzo(b)fluoranthene	0.68	f	0.2	a	0.018	b		0.024	0.006 J	0.020 U	0.150 J	0.065 J	0.040 J	0.021 U	0.021 U	0.008 U	0.019 U	0.010 J	0.020 U	0.020 U	0.008 U	0.019 U	0.030 J	0.030 J	0.020 U	0.020 U	0.034	0.020 U			
Benzo(k)fluoranthene	0.64	f	0.2	a	0.018	b		0.013	0.004 J	0.020 U	0.049 J	0.021 J	0.030 J	0.021 U	0.020 U	0.008 U	0.019 U	0.008 J	0.020 U	0.020 U	0.008 U	0.019 U	0.020 J	0.010 J	0.020 U	0.020 U	0.008 U	0.020 U			
Benzo(a)pyrene	0.96	f	0.2	a	0.018	b		0.019	0.006 U	0.016 U	0.100 J	0.031 J	0.030 J	0.017 U	0.020 U	0.008 U	0.019 U	0.095 U	0.017 U	0.016 U	0.008 U	0.019 U	0.030 J	0.020 J	0.016 U	0.016 U	0.017	0.020 U			
Indeno(1,2,3-cd)pyrene	0.28	f	0.2	a	0.018	b		0.018	0.006 J	0.024 U	0.089 J	0.035 J	0.040 J	0.026 U	0.020 U	0.008 U	0.019 U	0.010 J	0.025 U	0.024 U	0.008 U	0.019 U	0.020 J	0.020 J	0.024 U	0.024 U	0.020	0.020 U			
Dibenz(a,h)anthracene	0.28	f	0.2	a	0.018	b		0.015	0.004 U	0.031 U	0.031 U	0.020 U	0.009 J	0.032 U	0.020 U	0.008 U	0.019 U	0.190 U	0.031 U	0.031 U	0.008 U	0.019 U	0.009 J	0.008 J	0.031 U	0.031 U	0.008 U	0.020 U			
Benzo(g,h,i)perylene	0.44	f	--		--	--		0.023	0.007 J	0.017 U	0.140 J	0.041 J	0.060 J	0.018 U	0.020 U	0.009	0.019 U	0.010 J	0.017 U	0.017 U	0.008 U	0.019 U	0.040 J	0.030 J	0.017 U	0.017 U	0.027	0.020 U			
Miscellaneous Semivolatiles																															
3- and 4-Methylphenol	--		180	c	--	--		0.19	0.30 J	0.23 J	0.05 U	0.50 U	0.49	0.09 J	0.05 U	0.48 U	0.50 U	0.48 U	0.22 J	0.12 J	0.48 U	0.49 U	0.20 J	0.20 J	0.05 U	0.05 U	0.48 U	0.47 U			
Dibenzofuran	3.7	d	12	c	--	--		0.03	0.01 J	0.014 U	0.014 U	0.02 U	0.02 J	0.01 U	0.01 U	0.02 U	0.02 U	0.01 U	0.02 J	0.01 U	0.01	0.02 U	0.13	0.11	0.11 J	0.01 U	0.013 U	0.02 U			
Dimethyl Phthalate	3.0	e	370,000	c	1.1E+06	--		0.37	--	--	--	0.36	--	--	--	0.22	0.66	--	--	--	0.32	0.46	--	--	--	--	0.29	0.25			
Diethyl Phthalate	210	e	29,000	c	44,000	b		0.21	--	--	--	0.20 U	--	--	--	0.47	0.24	--	--	--	0.20 U	0.22	--	--	--	--	0.20 U	0.26			
Di-n-butyl Phthalate	35	e	3,700	c	4,500	b		0.15	--	--	--	0.20 U	--	--	--	0.21	0.35	--	--	--	0.20 U	0.20 U	--	--	--	--	0.20 U	0.19 U			
Butyl Benzyl Phthalate	19	e	7,300	c	1,900	b		0.10	0.10 J	0.19 J	0.20	0.20 U	0.10 J	0.05 J	0.08 J	0.20 U	0.20 U	0.08 J	0.09 J	0.09 J	0.20 U	0.20 U	0.05 J	0.04 J	0.14 J	0.10 J	0.20 U	0.19 U			
Bis(2-ethylhexyl) Phth.	3.0	e	4.8	c	2.2	b		1.78	--	--	--	0.99 U	--	--	--	1.4	6.7	--	--	--	0.96 U	2.4	--	--	--	--	0.96 U	0.94 U			
Di-n-octyl Phthalate	3.0	e	1,500	c	--	--		0.12	0.003 U	0.03 U	0.03 U	0.20 U	0.003 U	0.03 U	0.11 J	0.20 U	0.20 U	0.95 U	0.03 U	0.03 U	0.20 U	0.20 U	0.95 U	0.96 U	0.032 U	0.032 U	0.20 U	0.19 U			

**Table 5
Risk Screening Evaluation of Site Stormwater
McCall Oil and Chemical**

	JSCS (2007) Screening Levels and Other Criteria							Site Stormwater Concentrations																						
	Aquatic Life Criterion	Reference	Drinking Water Criterion	Reference	Fish Consump. (17.5 g/day)	Reference	Willamette R. Background (g)	NPDES 1200-Z Permit Limit (h)	Mean Site-Wide	S-1	S-1	S-1	S-1	S-2	S-2	S-2	S-2	S-2	S-3	S-3	S-3	S-3	S-3	S-4	S-4 Dupe	S-4	S-4	S-4	S-4	
									12/20/00	03/06/02	04/07/05	11/12/07	12/20/00	03/06/02	04/07/05	05/02/07	11/12/07	12/15/00	03/06/02	04/07/05	05/02/07	11/12/07	12/15/00	12/15/00	04/09/02	04/07/05	05/02/07	11/12/07		
Polychlorinated Biphenyls									PCBs																					
Arochlor 1016	--		0.96	c	--		--	0.10	--	--	--	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	--	--	--	0.20 U	0.20 U
Arochlor 1221	0.28	d	0.034	c	--		--	0.20	--	--	--	0.39 U	--	--	--	0.39 U	0.40 U	--	--	--	0.39 U	0.39 U	--	--	--	--	--	--	0.39 U	0.39 U
Arochlor 1232	0.58	d	0.034	c	--		--	0.10	--	--	--	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	--	--	--	0.20 U	0.20 U
Arochlor 1242	0.053	d	0.034	c	--		--	0.10	--	--	--	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	--	--	--	0.20 U	0.20 U
Arochlor 1248	0.081	d	0.034	c	--		--	0.10	--	--	--	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	--	--	--	0.20 U	0.20 U
Arochlor 1254	0.033	d	0.034	c	--		--	0.10	--	--	--	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	--	--	--	0.20 U	0.20 U
Arochlor 1260	94	d	0.034	c	--		--	0.10	--	--	--	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	0.20 U	0.20 U	--	--	--	--	--	--	0.20 U	0.20 U
Total Petroleum Hydrocarbons (mg/L)																														
Gasoline Range								0.23	1.1 Z	0.11 U	0.1 U	0.25 U	0.1 U	0.13 Z	0.1 U	0.25 U	0.25 U	1.3 Z	0.11 U	0.12 Z	0.25 U	0.25 U	0.27 Z	0.26 Z	0.22 H	0.1 U	0.25 U	0.25 U		
Diesel Range								0.38	0.1 U	0.11 U	0.34 H	0.33 H	0.1 U	0.11 U	0.31 Y	0.25 U	0.5 H	0.51 Z	0.11 Z	0.55 Y	0.29 Z	0.29 Y	0.28 Z	0.3 Z	1.3 F	0.44 Y	1 Z	0.74 Y		
Residual Oil Range								0.42	0.25 U	0.27 U	0.88 O	0.61 O	0.25 U	0.26 U	0.43 O	0.5 U	1.6 O	0.25 U	0.26 U	1 O	0.5 U	0.5 U	0.25 U	0.25 U	0.55 O	0.34 L	0.94 Z	0.5 U		
Total Petroleum							10	1.00	1.1	0	1.22	0.94	0	0.13	0.74	0	2.1	1.81	0.11	1.67	0.29	0.29	0.55	0.56	2.07	0.78	1.94	0.74		

Legend:

- Concentration above ecological screening level and Willamette River background
- Mean concentration above human health screening level and Willamette River background

Notes:

- U = Not detected at indicated quantitation limit; J = Estimated concentration; Bold value = detected concentration
- (a) MCL
- (b) EPA 2004 NRWQC
- (c) Tap water PRGs
- (d) Oak Ridge National Laboratory's (Tier II SCV)
- (e) DEQ's 2004 AWQC (chronic)
- (f) EPA (2003) Final Chronic Values
- (g) Fuhrer et al., 1996; DEQ, 2002; 90th percentile value for Lower Columbia Basin
- (h) NPDES Oil and Grease Limit used to evaluate TPH

Table 6
Risk Screening Evaluation of Shoreline Groundwater
McCall Oil and Chemical

	JSCS (2007) Screening Levels and Other Criteria								Shoreline Groundwater Monitoring Wells																				
	Aquatic Life Criterion	Reference	Drinking Water Criterion	Reference	Fish Consump. (17.5 g/day)	Reference	Willamette R. Background (g)	NPDES 1200-Z Permit Limits	Mean Site-Wide	EX-2	EX-2	EX-2	EX-2	EX-2	EX-3	EX-3	EX-3	EX-3	EX-3	EX-5	EX-5	EX-5	MW-5	MW-5	MW-5	MW-5 Dup			
										12/20/00	03/07/02	10/04/02	02/12/04	10/21/04	12/20/00	03/07/02	10/04/02	02/12/04	10/21/04	12/20/00	03/07/02	10/04/02	12/20/00	03/07/02	10/03/02	10/03/02			
Metals (ug/L)																													
Arsenic - Total	150	e	10	a	0.140	b	2		26.2	--	--	--	57	65	--	--	--	87	90	--	--	--	--	--	--	--	--	--	
Arsenic - Dissolved	150	e	10	a	0.140	b	2		22.1	--	--	--	66	72	--	--	--	86	90	--	--	--	--	--	--	--	--	--	
Chromium - Total	74	b	100	a	--		5.8		35.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Chromium - Dissolved	74	b	100	a	--		5.8		1.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Copper - Total	2.7	b	1,300	a	--		9	100	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Copper - Dissolved	2.7	b	1,300	a	--		9		0.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Low Molecular Weight PAHs (ug/L)																													
Naphthalene	194	f			--	--	--		0.03	0.01 J	0.01 U	0.02 J	0.02 J	0.01 U	0.02 J	0.01 U	0.04 J	0.01 U	0.01 U	0.01 J	0.03 J	0.02 J	0.01 U	0.03 J	0.01 U	0.02 J	0.01 U	0.02 J	
Acenaphthylene	307	f			--	--	--		0.01	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	
Acenaphthene	56	f			990	b	--		0.08	0.02 J	0.04 J	0.11 J	0.03 J	0.04 J	0.01 J	0.01 U	0.02 J	0.01 U	0.01 U	0.01 J	0.02 J	0.02 J	0.01 U	0.01 U	0.02 J	0.02 J	0.01 U	0.01 U	
Fluorene	39	f			5,300	b	--		0.07	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	
Phenanthrene	19	f			--	--	--		0.14	0.04 J	0.05 J	0.06 J	0.04 J	0.02 J	0.04 J	0.06 J	0.06 J	0.03 J	0.02 J	0.02 J	0.03 J	0.04 J	0.01 U	0.01 U	0.02 J	0.02 J	0.01 U	0.01 U	
Anthracene	21	f			40,000	b	--		0.03	0.01 U	0.02 U	0.02 U	0.02 U	0.02 U	0.01 U	0.02 J	0.02 J	0.02 U	0.02 U	0.01 U	0.02 U	0.02 J	0.01 U	0.02 U	0.03 J	0.02 J	0.01 U	0.01 U	
2-Methylnaphthalene	72	f			--	--	--		0.02	0.01 J	0.01 J	0.02 J	0.01 J	0.01 U	0.01 U	0.01 U	0.02 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	
High Molecular Weight PAHs (ug/L)																													
Fluoranthene	7.1	f			140	b	--		0.046	0.01 J	0.02 J	0.01 U	0.01 U	0.01 U	0.01 J	0.04 J	0.03 J	0.01 U	0.01 U	0.01 J	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.03 J	0.03 J	
Pyrene	10	f			4,000	b	--		0.081	0.03 J	0.04 J	0.07 J	0.04 J	0.03 J	0.03 J	0.06 J	0.06 J	0.03 J	0.03 J	0.04 J	0.05 J	0.07 J	0.01 U	0.02 J	0.04 J	0.03 J	0.03 J		
Benz(a)anthracene	2.2	f	0.2	a	0.018	b	--		0.023	0.007 J	0.013 U	0.012 U	0.012 U	0.012 U	0.008 J	0.013 U	0.012 U	0.012 U	0.012 U	0.006 J	0.013 U	0.012 U	0.005 U	0.013 U	0.030 J	0.012 U	0.012 U	0.012 U	
Chrysene	2.0	f	0.2	a	0.018	b	--		0.032	0.007 J	0.015 U	0.014 U	0.014 U	0.014 U	0.010 J	0.015 U	0.014 U	0.014 U	0.014 U	0.008 J	0.015 U	0.014 U	0.006 U	0.015 U	0.022 J	0.014 U	0.014 U	0.014 U	
Benzo(b)fluoranthene	0.68	f	0.2	a	0.018	b	--		0.022	0.006 J	0.021 U	0.020 U	0.020 U	0.020 U	0.006 J	0.021 U	0.020 U	0.020 U	0.020 U	0.005 U	0.021 U	0.020 U	0.005 U	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U	
Benzo(k)fluoranthene	0.64	f	0.2	a	0.018	b	--		0.013	0.006 J	0.021 U	0.020 U	0.020 U	0.020 U	0.006 J	0.021 U	0.020 U	0.020 U	0.020 U	0.003 J	0.021 U	0.020 U	0.003 U	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U	
Benzo(a)pyrene	0.96	f	0.2	a	0.018	b	--		0.022	0.007 J	0.017 U	0.016 U	0.016 U	0.016 U	0.007 J	0.017 U	0.016 U	0.016 U	0.016 U	0.006 U	0.017 U	0.016 U	0.006 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U	
Indeno(1,2,3-cd)pyrene	0.28	f	0.2	a	0.018	b	--		0.020	0.009 J	0.026 U	0.024 U	0.024 U	0.024 U	0.009 J	0.026 U	0.024 U	0.024 U	0.024 U	0.007 J	0.026 U	0.024 U	0.004 U	0.026 U	0.024 U	0.024 U	0.024 U	0.024 U	
Dibenz(a,h)anthracene	0.28	f	0.2	a	0.018	b	--		0.014	0.005 J	0.033 U	0.031 U	0.031 U	0.031 U	0.004 U	0.033 U	0.031 U	0.031 U	0.031 U	0.004 U	0.033 U	0.031 U	0.004 U	0.033 U	0.031 U	0.031 U	0.031 U	0.031 U	
Benzo(g,h,i)perylene	0.44	f	--		--	--	--		0.028	0.010 J	0.018 U	0.017 U	0.017 U	0.017 U	0.020 J	0.034 J	0.025 J	0.017 U	0.017 U	0.030 J	0.054 J	0.031 J	0.005 U	0.018 U	0.017 U	0.017 U	0.017 U		
Miscellaneous Semivolatiles (ug/L)																													
3- and 4-Methylphenol	--		180	c	--	--	--		0.12	0.02 J	0.06 U	0.05 U	0.05 U	0.05 U	0.05 J	0.09 J	0.09 J	0.05 U	0.05 U	0.01 J	0.06 U	0.05 U	0.00 U	0.06 U	0.05 U	0.05 U	0.05 U	0.05 U	
Dibenzofuran	3.7	d	12	c	--	--	--		0.02	0.007 U	0.014 U	0.014 U	0.014 U	0.014 U	0.007 U	0.014 U	0.014 U	0.014 U	0.014 U	0.007 U	0.014 U	0.014 U	0.007 U	0.015 U	0.200 U	0.014 U	0.014 U	0.014 U	
Butyl Benzyl Phthalate	19	d	7,300	c	1,900	b	--		0.02	0.02 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	0.03 U	0.03 U	0.02 U	0.03 U	0.05 J	0.03 U	0.03 U	0.03 U	
Di-n-octyl Phthalate	3.0	e	1,500	c	--	--	--		0.01	0.00 U	0.04 U	0.03 U	0.03 U	0.03 U	0.00 U	0.04 U	0.03 U	0.03 U	0.03 U	0.00 U	0.04 U	0.03 U	0.00 U	0.04 U	0.03 U	0.01 U	0.01 U	0.01 U	
Total Petroleum Hydrocarbons (ug/L)																													
Gasoline Range	--		--		--	--	--																						
Diesel Range	--		--		--	--	--																						
Residual Oil Range	--		--		--	--	--																						
Total Petroleum	--		--		--	--	--	10 (h)																					
Volatile Organic Compounds (ug/L)																													
Carbon Disulfide	0.92	d	1,000	c	--	--	--		NC	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	1.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
cis-1,2-Dichloroethylene	590	d	61	c	--	--	--		NC	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Toluene	9.8	d	1,000	a	15,000	b	--		NC	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	1.3	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	
Vinyl Chloride	--		0.015	c	2.4	b	--		NC	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	

Legend:
 Concentration above ecological SLV and Willamette River background
 Mean concentration above human health SLV and Willamette River background
 NC Not calculated due to insufficient detections

Notes:
 U = Not detected at indicated quantitation limit; J = Estimated concentration; Bold value = detected concentration
 (a) MCL (e) DEQ's 2004 AWQC (chronic)
 (b) EPA 2004 NRWQC (f) EPA (2003) Final Chronic Values
 (c) Tap water PRGs (g) Fuhrer et al., 1996; DEQ, 2002; 90th percentile value for Lower Columbia Basin
 (d) Oak Ridge National Laboratory's (Tier II SCV) (h) NPDES Oil and Grease Limit used to evaluate TPH

Table 6
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McCall Oil and Chemical

	JSCS (2007) Screening Levels and Other Criteria								Shoreline Groundwater Monitoring Wells														
	Aquatic Life Criterion	Reference	Drinking Water Criterion	Reference	Fish Consump. (17.5 g/day)	Reference	Willamette R. Background (g)	NPDES 1200-Z Permit Limits	MW-5	MW-5	MW-7	MW-7	MW-7	MW-7	MW-7 Dup	MW-7	MW-8	MW-8	MW-8	MW-8	MW-8	MW-14	MW-14
									02/11/04	10/22/04	10/25/01	03/08/02	10/04/02	02/12/04	02/12/04	10/21/04	10/25/01	03/07/02	10/04/02	02/12/04	10/21/04	02/11/04	10/21/04
Metals (ug/L)																							
Arsenic - Total	150	e	10	a	0.140	b	2		16	25	18	4.4	--	5.0	5.0	5.1	44	4.3	--	5.4	10.1	1.5	2.7
Arsenic - Dissolved	150	e	10	a	0.140	b	2		15	20	3.0	3.5	9.1	5.1	5.1	6.3	2.3	8.6	9.6	5.6	10.3	1.5	1.5
Chromium - Total	74	b	100	a	--		5.8		--	--	127	9.1	--	0.7	0.8	1.1	225	15	--	1.7	3.1	1.3	0.6
Chromium - Dissolved	74	b	100	a	--		5.8		--	--	1.0 U	2.3	2.1	2.0	0.7	1.1	1.0 U	2.9	1.4	0.8	1.0	2.6	0.5
Copper - Total	2.7	b	1,300	a	--		9	100	--	--	164	19	--	0.5	0.4	0.1 U	394	36	--	2.0	3.8	1.7	2.4
Copper - Dissolved	2.7	b	1,300	a	--		9		--	--	2.0 U	1.3	0.7	0.7	0.3	0.1 U	2.0 U	1.3	0.3	0.2	0.1 U	1.3	2.1
Low Molecular Weight PAHs (ug/L)																							
Naphthalene	194	f			--		--		0.03 J	0.01 U	5.00 U	0.09 J	0.02 J	0.01 U	0.01 U	0.01 U	5.00 U	0.16 J	0.38	0.03 J	0.01 U	0.02 J	0.01 U
Acenaphthylene	307	f			--		--		0.01 U	0.01 U	5.00 U	0.03 J	0.01 U	0.01 U	0.01 U	0.01 U	5.00 U	0.01 U	0.21	0.01 U	0.01 U	0.01 U	0.01 U
Acenaphthene	56	f			990	b	--		0.01 U	0.01 U	5.00 U	0.01 U	0.01 U	0.01 U	0.05 J	0.03 J	5.00 U	0.58	0.78	0.34	0.21	0.03 J	0.01 U
Fluorene	39	f			5,300	b	--		0.01 U	0.01 U	5.00 U	0.01 U	5.00 U	0.56	0.91	0.36	0.22	0.01 U	0.01 U				
Phenanthrene	19	f			--		--		0.01 U	0.01 U	5.00 U	0.08 J	0.03 J	0.02 J	0.04 J	0.01 U	5.00 U	1.20	1.70	0.22	0.22	0.01 U	0.01 U
Anthracene	21	f			40,000	b	--		0.02 U	0.02 U	5.00 U	0.04 J	0.03 J	0.02 J	0.03 J	0.02 U	5.00 U	0.10 J	0.38	0.03 J	0.02 U	0.02 U	0.02 U
2-Methylnaphthalene	72	f			--		--		0.01 U	0.01 U	5.00 U	0.03 J	0.01 U	0.01 U	0.01 U	0.01 U	5.00 U	0.08 J	0.16 J	0.01 U	0.00 J	0.01 U	0.01 U
High Molecular Weight PAHs (ug/L)																							
Fluoranthene	7.1	f			140	b	--		0.01 U	0.01 U	5.0 U	0.06 J	0.01 U	0.01 U	0.01 U	0.01 U	5.0 U	0.22	0.73	0.04 J	0.05 J	0.01 U	0.01 U
Pyrene	10	f			4,000	b	--		0.02 U	0.02 U	5.0 U	0.09 J	0.03 J	0.02 U	0.02 U	0.02 U	5.0 U	0.34	1.10	0.07 J	0.08 J	0.02 U	0.02 U
Benz(a)anthracene	2.2	f	0.2	a	0.018	b	--		0.012 U	0.012 U	5.0 U	0.044 J	0.012 U	0.012 U	0.012 U	0.012 U	5.0 U	0.071 J	0.390	0.012 U	0.012 U	0.012 U	0.012 U
Chrysene	2.0	f	0.2	a	0.018	b	--		0.014 U	0.014 U	5.0 U	0.045 J	0.014 U	0.014 U	0.014 U	0.014 U	5.0 U	0.160 J	0.560	0.014 U	0.014 U	0.014 U	0.014 U
Benzo(b)fluoranthene	0.68	f	0.2	a	0.018	b	--		0.020 U	0.020 U	5.0 U	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U	5.0 U	0.064 J	0.350	0.020 U	0.020 U	0.020 U	0.020 U
Benzo(k)fluoranthene	0.64	f	0.2	a	0.018	b	--		0.020 U	0.020 U	5.0 U	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U	5.0 U	0.020 U	0.130 J	0.020 U	0.020 U	0.020 U	0.020 U
Benzo(a)pyrene	0.96	f	0.2	a	0.018	b	--		0.016 U	0.016 U	5.0 U	0.017 U	0.016 U	0.016 U	0.016 U	0.016 U	5.0 U	0.089 J	0.360	0.016 U	0.016 U	0.016 U	0.016 U
Indeno(1,2,3-cd)pyrene	0.28	f	0.2	a	0.018	b	--		0.024 U	0.024 U	5.0 U	0.026 U	0.024 U	0.024 U	0.024 U	0.024 U	5.0 U	0.040 J	0.250	0.024 U	0.024 U	0.024 U	0.024 U
Dibenz(a,h)anthracene	0.28	f	0.2	a	0.018	b	--		0.031 U	0.031 U	5.0 U	0.032 U	0.031 U	0.031 U	0.031 U	0.031 U	5.0 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U
Benzo(g,h,i)perylene	0.44	f	--		--		--		0.017 U	0.017 U	5.0 U	0.099 J	0.017 U	0.017 U	0.017 U	0.017 U	5.0 U	0.057 J	0.310	0.017 U	0.017 U	0.017 U	0.017 U
Miscellaneous Semivolatiles (ug/L)																							
3- and 4-Methylphenol	--		180	c	--		--		0.05 U	0.05 U	5.00 U	1.1	0.05 U	0.05 U	0.05 U	0.05 U	5.00 U	0.22 J	1.6	0.05 U	0.05 U	0.05 U	0.05 U
Dibenzofuran	3.7	d	12	c	--		--		0.014 U	0.014 U	5.00 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	5.00 U	0.18 J	0.014 U	0.092 J	0.014 U	0.014 U	0.014 U
Butyl Benzyl Phthalate	19	d	7,300	c	1,900	b	--		0.03 U	0.03 U	5.00 U	0.03 U	5.00 U	0.13 J	0.03 U								
Di-n-octyl Phthalate	3.0	e	1,500	c	--		--		0.03 U	0.03 U	5.00 U	0.03 U	5.00 U	0.03 U									
Total Petroleum Hydrocarbons (ug/L)																							
Gasoline Range	--		--		--		--																
Diesel Range	--		--		--		--																
Residual Oil Range	--		--		--		--																
Total Petroleum	--		--		--		--	10 (h)															
Volatile Organic Compounds (ug/L)																							
Carbon Disulfide	0.92	d	1,000	c	--		--		0.5 U	0.5 U	10.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	10.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,2-Dichloroethylene	590	d	61	c	--		--		0.5 U	0.5 U	2.9	2.1	2.5	5.2	5.3	3.2	1.2	0.5 U	1.1	0.5 U	1.2	0.5 U	1.0
Toluene	9.8	d	1,000	a	15,000	b	--		0.5 U	0.5 U	1.0 U	3.4	2.4	0.5 U	0.5 U	0.5 U	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	--		0.015	c	2.4	b	--		0.5 U	0.5 U	1.0 U	0.5 U	0.5 U	1.4	1.4	0.8	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Legend:

- Concentration above ecological SLV and Willamette River background
- Mean concentration above human health SLV and Willamette River background
- NC Not calculated due to insufficient detections

Notes:

- U = Not detected at indicated quantitation limit; J = Estimated concentration; Bold value = detected concentration
- (a) MCL
- (b) EPA 2004 NRWQC
- (c) Tap water PRGs
- (d) Oak Ridge National Laboratory's (Tier II SCV)
- (e) DEQ's 2004 AWQC (chronic)
- (f) EPA (2003) Final Chronic Values
- (g) Fuhrer et al., 1996; DEQ, 2002; 90th percentile value for Lower Columbia Basin
- (h) NPDES Oil and Grease Limit used to evaluate TPH

Table 7
Risk Screening Evaluation of Bank Soil and Catch Basin Sediment
McCall Oil and Chemical

	MacDonald PECs and other SQVs	ODEQ 2007 Bioaccumulation SLVs	Bank Surface Soils						Stormwater Catch Basin Sediment									Outfall
			GP-14 0-2	GP-15 0-2	GP-16 0-2	GP-17 0-2	GP-18 0-2	GP-19 0-2	Mean Site-Wide	S-1	S-1	S-2	S-2	S-3	S-3	S-3	S3-01C	
			Soil	Soil	Soil	Soil	Soil	Soil		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	
12/13/00	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00	12/15/00	11/12/07	12/15/00	11/12/07	12/15/00	11/04/04	05/02/07	12/15/00					
Metals (mg/kg)																		
Arsenic	33	7	2.2	1.7	1.6	1.5	1.3	1.6	14	5.2	4.4	7.5	4.6	38	26	10	4.4	
Cadmium	4.98	1							1.8	2.0	1.8	1.4	1.1	2.9	1.9	1.6	0.12	
Chromium	111	--	13	11	11	10	9	10	106	49	122	64	95	144	189	79	12	
Copper	149	--	17	18	15	13	14	12	502	137	214	316	115	1,050	1,360	321	27	
Lead	128	17							312	145	312	211	256	454	600	206	8.6	
Manganese	1,100	--							606		845		511			462		
Mercury	1.06	0.07							0.17		0.08		0.20			0.24		
Nickel	48.6	--							45		52		39			44		
Silver	5	--							0.60		0.55		0.33			0.92		
Zinc	459	--							868	638	1,550	584	630	985	752	938	83	
Low Molecular Weight PAHs (ug/kg)																		
Naphthalene	561	--	7.5 U	1 J	1 J	7.4 U	7.6 U	7.3 U	201	200 JD	270	50 JD	290	400 JD	64 JD	130	12 U	
Acenaphthylene	200	--	0.7 J	0.5 J	7.6 U	7.4 U	7.6 U	7.3 U	34	40 JD	42	20 JD	28	60 JD	37 JU	31	12 U	
Acenaphthene	300	--	7.5 U	7.6 U	7.6 U	7.4 U	7.6 U	7.3 U	125	200 JD	230	30 JD	21	720 U	26 JU	24	12 U	
Fluorene	536	--	7.5 U	0.8 J	7.6 U	7.4 U	7.6 U	7.3 U	571	100 JD	130	20 JD	26	3,600 D	72 JD	47	12 U	
Phenanthrene	1,170	--	7.5 U	13	3 J	7.4 U	7.6 U	7.3 U	1,146	1,500 D	950	320 D	320	3,600 D	660 JD	670	12 U	
Anthracene	845	--	0.9 J	2 J	7.6 U	7.4 U	7.6 U	7.3 U	505	400 JD	230	50 JD	56	2,600 D	140 JD	58	12 U	
2-Methylnaphthalene	200	--	0.6 J	1 J	1 J	7.4 U	0.5 J	7.3 U	123	100 JD	180	50 JD	33	400 JD	31 JU	80	1 J	
High Molecular Weight PAHs (ug/kg)																		
Fluoranthene	2,230	37,000	6 J	34	8 J	5 J	6 J	2 J	1,904	2,600 D	1,400	690 D	660	5,800 D	1,400 JD	780	3 J	
Pyrene	1,520	1,900	7 J	29	7 J	4 J	6 J	2 J	1,859	2,600 D	1,300	770 D	640	5,500 D	1,200 JD	1,000	3 J	
Benz(a)anthracene	1,050	--	4 J	17	5 J	3 J	3 J	2 J	794	1,300 D	470	440 D	220	2,500 D	400 JD	230	2 J	
Chrysene	1,290	--	7 J	28	7 J	5 J	6 J	2 J	1,561	2,000 D	880	740 D	520	5,300 D	1,100 JD	390	3 J	
Benzo(b)fluoranthene	--	--	5 J	25	6 J	4 J	5 J	2 J	1,461	2,000 D	930	780 D	750 X	4,100 D	1,100 JD	570	3 J	
Benzo(k)fluoranthene	13,000	--	5 J	22	6 J	3 J	4 J	2 J	885	1,500 D	300	540 D	6 U	3,400 D	270 JD	180	2 J	
Benzo(a)pyrene	1,450	--	6 J	24	5 J	4 J	4 J	2 J	1,136	1,900 D	540	670 D	330	3,700 D	490 JD	320	2 J	
Indeno(1,2,3-cd)pyrene	100	--	6 J	24	7 J	5 J	5 J	2 J	1,027	1,500 D	570	490 D	400	3,200 D	530 JD	500	2 J	
Dibenz(a,h)anthracene	1,300	--	1 J	5 J	1 J	1 J	1 J	1 J	231	300 JD	88	100 JD	78	800 JD	150 JD	100	24 U	
Benzo(g,h,i)perylene	300	--	8 J	23	8 J	6 J	5 J	2 J	1,299	1,600 D	810	500 D	690	3,600 D	790 JD	1,100	3 J	
Miscellaneous Semivolatiles (ug/kg)																		
3- and 4-Methylpheno	--	--	150 U	150 U	150 U	150 U	150 U	150 U	NC	13,000 U	650 UJ	1,900 U	7,100 J	4,000 JD	3,000 JD	680 U	240 U	
Dibenzofur	--	--	0.6 J	0.8 J	7.6 U	7.4 U	7.6 U	7.3 U	82	100 JD	100 JD	20 JD	20 JD	200 JD	69 JD	67	12 U	
Dimethyl Phthalate	--	--	15 U	4 J	0.7 J	1 J	1 J	1 J	ND		650 UJ		640 UJ			680 U		
Diethyl Phthalate	600	--							ND		650 UJ		640 UJ			680 U		
Di-n-butyl Phthalate	--	60?							713		1,300 UJ		1,300 UJ			840 D		
Butyl Benzyl Phthalate	--	--							2,724	1,500 D	1,200 J	2,500 D	7,600 J	5,000 D	930 JD	680 U	1 J	
Bis(2-ethylhexyl) Phth	--	330?							9,900		8,700 J		9,000 J			12,000 D		
Di-n-octyl Phthalate	--	--	150 U	150 U	150 U	150 U	150 U	0.8 J	ND	13,000 U	13,000 UJ	1,900 U	1,300 UJ	14,000 U	11,000 JD	680 U	2 J	

Table 7
Risk Screening Evaluation of Bank Soil and Catch Basin Sediment
McCall Oil and Chemical

	MacDonald PECs and other SQVs	ODEQ 2007 Bioaccumulation SLVs	Bank Surface Soils						Stormwater Catch Basin Sediment									Outfall
			GP-14 0-2	GP-15 0-2	GP-16 0-2	GP-17 0-2	GP-18 0-2	GP-19 0-2	Mean Site-Wide	S-1	S-1	S-2	S-2	S-3	S-3	S-3	S3-01C	
			Soil	Soil	Soil	Soil	Soil	Soil		Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	Sediment	
12/13/00	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00		12/15/00	11/12/07	12/15/00	11/12/07	12/15/00	11/04/04	05/02/07	12/15/00				
Polychlorinated Biphenyls (ug/kg)																		
Arochlor 1016	530	--							ND		13 U		13 U				11 U	
Arochlor 1221	--	--							ND		26 U		26 U				22 U	
Arochlor 1232	--	--							ND		13 U		13 U				11 U	
Arochlor 1242	--	--							ND		23 P		13 U				11 U	
Arochlor 1248	1500	--							ND		13 U		13 U				11 U	
Arochlor 1254	300	--							47		57		28 Ui				69	
Arochlor 1260	200	--							50		46		30				75	
Total PCBs	676	0.39							100		126		30				144	
Total Petroleum Hydrocarbons (mg/kg)																		
Gasoline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	107	26 Y	13 U	21 Y	13 U	580 Y	210 U	14 U	10 U	10 U
Diesel	--	--	14 F	10 U	10 U	13 H	21 H	10 U	1,141	400 H	590 DH	300 H	1,300 DH	2,400 H	1,600 JH	1,400 DH	10 U	10 U
Residual Oil	--	--	55 F	30 Z	49 F	84 F	210 F	25 U	6,443	1,900 O	4,600 DO	2,200 DO	11,000 DO	7,600 DO	8,500 JO	9,300 DO	30 Y	30 Y
Total Petroleum	--	--	69	30	49	97	231	0	7,674	2,326	5,190	2,521	12,300	10,580	10,100	10,700	30	30

Legend:

- Concentration above ecological screening level
- Mean concentration above human health screening level
- ND Not detected
- NC Not calculated due to insufficient detections

Notes:

- U = not detected at or above the indicated method reporting limit.
- J = estimated concentration. D = reported result is from a dilution.

Table 8
Trend Analysis of Ten-Year Stormwater Monitoring Record
McCall Oil and Chemical

Sampling Station	n (count)	r ²	T statistic	T 95%	Significant?	Trend	Exponential Decay Model (Linear Model in Log base 10)	% Reduction in 10 years
TSS								
S-1	31	0.21	2.24	2.05	YES	DOWN	y = -0.0619 x + 6.6336	76.0%
S-3	35	0.40	4.94	2.03	YES	DOWN	y = -0.0509 x + 7.7158	69.0%
Oil & Grease								
S-1	31	0.008	0.22	2.05	NO			
S-3	33	0.022	1.53	2.04	NO			
OWS	378	0.005	1.22	1.97	NO			
COD								
S-1	13	0.17	1.18	2.20	NO			
S-3	16	0.17	3.47	2.14	YES	DOWN	y = -0.0619 x + 7.8030	76.0%
Copper								
S-1	31	0.16	1.49	2.05	NO		y = -0.0438 x + 2.8979	63.5%
S-3	35	0.31	4.77	2.03	YES	DOWN	y = -0.0798 x + 6.9264	84.1%
Lead								
S-1	31	0.45	4.88	2.05	YES	DOWN	y = -0.1100 x + 9.5519	92.1%
S-3	35	0.46	5.34	2.03	YES	DOWN	y = -0.1104 x + 9.7236	92.1%
Zinc								
S-1	30	0.15	1.90	2.05	(at 93%)	(DOWN)	y = -0.0336 x + 2.6384	53.9%
S-3	34	0.09	1.99	2.04	(at 94%)	(DOWN)	y = -0.0294 x + 2.3822	49.2%

**Table 9
Comparison of Site Stormwater with Portland Harbor Industrial Stormwater
McCall Oil and Chemical**

	Portland Harbor Stormwater			Site Stormwater Concentrations																				
	50th %-ile Heavy Industrial	Mean Heavy Industrial	90th %-ile Heavy Industrial	Mean Site-Wide	S-1 12/20/00	S-1 03/06/02	S-1 04/07/05	S-1 11/12/07	S-2 12/20/00	S-2 03/06/02	S-2 04/07/05	S-2 05/02/07	S-2 11/12/07	S-3 12/15/00	S-3 03/06/02	S-3 04/07/05	S-3 05/02/07	S-3 11/12/07	S-3 12/15/00	S-4 12/15/00	S-4 Dupe 04/09/02	S-4 04/07/05	S-4 05/02/07	S-4 11/12/07
Metals (ug/L)																								
Arsenic - Total	1.1	3.2	9.2	0.51	0.5 U	0.5 U	0.5 U	0.7	1 U	0.5 U	0.5 U	0.5 U	0.8	1 U	0.5 U	0.5 U	0.5 U	0.7	--	--	0.6	0.5	1.5	1.1
Arsenic - Dissolved	0.64	2.2	3.2	0.35	--	--	0.5 U	0.5 U	--	--	--	0.5 U	0.6	--	--	0.5 U	0.5 U	0.5	0.5 U	0.5 U	--	0.5 U	0.5 U	0.8
Cadmium - Total	0.42	1.4	1.5	0.23	0.05 U	0.20 U	0.16	0.21	0.22	0.20 U	0.07	0.12	0.30	--	0.2 U	1.1	0.17	0.17	--	--	0.20	0.19	0.51	0.21
Cadmium - Dissolved	0.19	0.31	0.70	0.21	--	--	0.07	0.07	--	--	0.05	0.05	0.10	0.63	--	0.96	0.15	0.15	0.22	0.21	--	0.09	0.16	0.01
Chromium - Total	3.8	21	44	2.1	0.4	0.4	7.0	2.3	2.0	0.6	1.1	1.1	5.5	--	1.2	1.9	2.3	1.6	--	--	0.9	1.1	5.2	1.5
Chromium - Dissolved	0.81	1.7	4.5	0.90	--	--	1.3	0.5	--	--	0.7	0.7	0.8	2.9	--	1.3	0.9	0.9	0.8	0.6	--	0.2	0.50	0.50
Copper - Total	27	74	187	14	3.8	3.7	14	20	9.9	10	9.4	11.3	25.9	--	13.1	8.6	19	24	--	--	--	8.3	28	15
Copper - Dissolved	7.9	17	39	10	--	--	7.9	9.6	--	--	6.0	8.8	8.3	30	--	7.1	13	18	4.9	4.7	9.0	4.4	14	11
Lead - Total	15	82	99	8.5	0.43	0.31	27	10	5.9	1.1	2.3	3.2	24	--	2.3	4.1	4.9	4.0	--	--	3.3	6.2	36	9.9
Lead - Dissolved	0.53	1.8	5.3	0.65	--	--	0.61	0.32	--	--	0.7	0.86	1.1	1.6	--	1.1	0.75	0.90	0.05	0.04	--	0.09	0.54	0.39
Zinc - Total	235	610	1,532	170	200	195	87	154	113	73	51	149	353	--	84	189	375	334	--	--	87	90	252	103
Zinc - Dissolved	85	228	435	161	--	--	48	92	--	--	43	101	184	596	--	182	301	312	47.1	45	--	46.8	201	59
Low Molecular Weight PAHs (ug/L)																								
LPAHs																								
Naphthalene	0.03	0.10	0.11	0.02	0.03 J	0.03 J	0.03 J	0.03 J	0.07 J	0.03 J	0.01 U	0.02	0.02	0.07 J	0.03 J	0.01 U	0.01	0.02 U	0.04 J	0.04 J	0.01 U	0.01 U	0.02 U	0.02 U
Acenaphthylene	0.01	0.03	0.08	0.02	0.01 J	0.01 U	0.04 J	0.02 U	0.02 J	0.01 U	0.03 J	0.02 D	0.02 U	0.10 U	0.01 U	0.01 U	0.01 U	0.02 U	0.10 U	0.10 U	0.01 U	0.01 U	0.01 U	0.02 U
Acenaphthene	0.02	0.03	0.08	0.03	0.02 J	0.01 U	0.01 U	0.02 U	0.02 J	0.01 U	0.01 U	0.02 U	0.02 U	0.10 U	0.01 U	0.01 U	0.01 U	0.02 U	0.14	0.12	0.09 J	0.01 U	0.01 U	0.02 U
Fluorene	0.02	0.03	0.07	0.05	0.02 J	0.01 U	0.03 J	0.02 U	0.04 J	0.01 U	0.01 U	0.02 U	0.02 U	0.02 J	0.01 U	0.01 U	0.01 U	0.02 U	0.36	0.34	0.17 J	0.01 U	0.01 U	0.02 U
Phenanthrene	0.11	0.22	0.47	0.10	0.07 J	0.03 J	0.19 J	0.07 J	0.25	0.04 J	0.05 J	0.03	0.04	0.20	0.05 J	0.06 J	0.02	0.03	0.46	0.35	0.07 J	0.03 J	0.03 U	0.02 U
Anthracene	0.03	0.05	0.14	0.01	0.01 U	0.02 U	0.04 J	0.02 U	0.02 J	0.02 U	0.02 U	0.02 U	0.01 U	0.02 U	0.02 U	0.02 U	0.01 U	0.02 U	0.02 J	0.01 J	0.02 U	0.02 U	0.01 U	0.02 U
2-Methylnaphthalene	0.01	0.04	0.10	0.02	0.03 J	0.02 J	0.01 U	0.02 U	0.05 J	0.01 J	0.01 U	0.01 U	0.02 U	0.10	0.01 U	0.01 U	0.01 U	0.02 U	0.09 J	0.10	0.01 U	0.01 U	0.01	0.02 U
High Molecular Weight PAHs (ug/L)																								
HPAHs																								
Fluoranthene	0.14	0.49	1.38	0.05	0.02 J	0.01 U	0.23	0.09 J	0.10	0.02 J	0.06 J	0.02	0.03	0.06 J	0.02 J	0.04 J	0.02	0.02	0.06 J	0.05 J	0.01 U	0.01 U	0.05	0.02 U
Pyrene	0.14	0.45	1.09	0.07	0.02 J	0.02 U	0.28	0.08 J	0.12	0.03 J	0.06 J	0.02	0.03	0.03 J	0.02 J	0.04 J	0.02	0.02 U	0.19	0.16	0.10 J	0.10 J	0.08	0.03
Benz(a)anthracene	0.048	0.198	0.425	0.015	0.005 U	0.012 U	0.081 J	0.031 J	0.030 J	0.013 U	0.012 U	0.008 U	0.019 U	0.007 J	0.012 U	0.012 U	0.008 U	0.019 U	0.030 J	0.020 J	0.012 U	0.012 U	0.012	0.020 U
Chrysene	0.082	0.344	0.729	0.032	0.008 J	0.014 U	0.140 J	0.066 J	0.060 J	0.015 U	0.014 U	0.008 U	0.019 U	0.030 J	0.015 U	0.014 U	0.009 U	0.019 U	0.120	0.090 J	0.014 U	0.014 U	0.030	0.020 U
Benzo(b)fluoranthene	0.076	0.400	0.770	0.024	0.006 J	0.020 U	0.150 J	0.065 J	0.040 J	0.021 U	0.021 J	0.008 U	0.019 U	0.010 J	0.020 U	0.020 U	0.008 U	0.019 U	0.030 J	0.030 J	0.020 U	0.020 U	0.034	0.020 U
Benzo(k)fluoranthene	0.027	0.136	0.259	0.013	0.004 J	0.020 U	0.049 J	0.021 J	0.030 J	0.021 U	0.020 U	0.008 U	0.019 U	0.008 J	0.020 U	0.020 U	0.008 U	0.019 U	0.020 J	0.010 J	0.020 U	0.020 U	0.0077 U	0.020 U
Benzo(a)pyrene	0.044	0.232	0.470	0.019	0.006 U	0.016 U	0.100 J	0.031 J	0.030 J	0.017 U	0.020 U	0.008 U	0.019 U	0.095 U	0.017 U	0.016 U	0.008 U	0.019 U	0.030 J	0.020 J	0.016 U	0.016 U	0.017	0.020 U
Indeno(1,2,3-cd)pyrene	0.048	0.284	0.579	0.018	0.006 J	0.024 U	0.089 J	0.035 J	0.040 J	0.026 U	0.020 U	0.008 U	0.019 U	0.010 J	0.025 U	0.024 U	0.008 U	0.019 U	0.020 J	0.020 J	0.024 U	0.024 U	0.020	0.020 U
Dibenzo(a,h)anthracene	0.012	0.065	0.119	0.015	0.004 U	0.031 U	0.031 U	0.020 U	0.009 J	0.032 U	0.020 U	0.008 U	0.019 U	0.190 U	0.031 U	0.031 U	0.008 U	0.019 U	0.009 J	0.008 J	0.031 U	0.031 U	0.0077 U	0.020 U
Benzo(g,h,i)perylene	0.052	0.273	0.568	0.023	0.007 J	0.017 U	0.140 J	0.041 J	0.060 J	0.018 U	0.020 U	0.009	0.019 U	0.010 J	0.017 U	0.017 U	0.008 U	0.019 U	0.040 J	0.030 J	0.017 U	0.017 U	0.027	0.020 U
Miscellaneous Semivolatiles																								
SVOCs																								
3- and 4-Methylphenol	0.25	1.4	4.8	0.19	0.30 J	0.23 J	0.05 U	0.50 U	0.49	0.09 J	0.05 U	0.48 U	0.50 U	0.48 U	0.22 J	0.12 J	0.48 U	0.49 U	0.20 J	0.20 J	0.05 U	0.05 U	0.48 U	0.47 U
Di-n-butyl Phthalate	0.24	0.49	1.38	0.15	--	--	--	0.20 U	--	--	--	0.21	0.35	--	--	--	0.20 U	0.20 U	--	--	--	--	0.20 U	0.19 U
Butyl Benzyl Phthalate	0.26	0.31	0.62	0.10	0.10 J	0.19 J	0.20	0.20 U	0.10 J	0.05 J	0.08 J	0.20 U	0.20 U	0.08 J	0.09 J	0.09 J	0.20 U	0.20 U	0.05 J	0.04 J	0.14 J	0.10 J	0.20 U	0.19 U
Bis(2-ethylhexyl) Phth.	1.5	2.5	7.3	1.78	--	--	--	0.99 U	--	--	--	1.4	6.7	--	--	--	0.96 U	2.4	--	--	--	--	0.96 U	0.94 U
Di-n-octyl Phthalate	0.03	0.30	0.89	0.12	0.003 U	0.03 U	0.03 U	0.20 U	0.003 U	0.03 U	0.11 J	0.20 U	0.20 U	0.95 U	0.03 U	0.03 U	0.20 U	0.20 U	0.95 U	0.96 U	0.032 U	0.032 U	0.20 U	0.19 U
Total Petroleum Hydrocarbons (mg/L)																								
Gasoline Range	--	--	--	0.23	1.1 Z	0.11 U	0.1 U	0.25 U	0.1 U	0.13 Z	0.1 U	0.25 U	0.25 U	1.3 Z	0.11 U	0.12 Z	0.25 U	0.25 U	0.27 Z	0.26 Z	0.22 H	0.1 U	0.25 U	0.25 U
Diesel Range	--	--	--	0.38	0.1 U	0.11 U	0.34 H	0.33 H	0.1 U	0.11 U	0.31 Y	0.25 U	0.5 H	0.51 Z	0.11 Z	0.55 Y	0.29 Z	0.29 Y	0.28 Z	0.3 Z	1.3 F	0.44 Y	1 Z	0.74 Y
Residual Oil Range	--	--	--	0.42	0.25 U	0.27 U	0.88 O	0.61 O	0.25 U	0.26 U	0.43 O	0.5 U	1.6 O	0.25 U	0.26 U	1 O	0.5 U	0.5 U	0.25 U	0.25 U	0.55 O	0.34 L	0.94 Z	0.5 U
Total Petroleum	2.5	5.9	12.5	1.00	1.1	0	1.22	0.94	0	0.13	0.74	0	2.1	1.81	0.11	1.67	0.29	0.29	0.55	0.56	2.07	0.78	1.94	0.74

Legend:
 Concentration greater than average (mean) of heavy industrial stormwater
 Concentration greater than 90th percentile of heavy industrial stormwater

Notes:
Bold value = detected concentration; U = Not detected at indicated quantitation limit; J = Estimated concentration; D = The reported result is from a dilution
F = Fingerprint of the sample matches elution pattern of calibration standard; L = Elution pattern indicates the presence of lighter weight constituents
H = Elution pattern indicates the presence of heavier weight constituents; O = Fingerprint resembles oil, but does not match the calibration standard
Y = Fingerprint resembles a petroleum product, but elution pattern does not match calibration standard; Z = Fingerprint does not resemble a petroleum product

Table 10
Comparison of Site Catch Basin Sediment with Portland Harbor Industrial Sites
McCall Oil and Chemical

	Portland Harbor Storm Sediment			Stormwater Catch Basin Sediment									Outfall
	50th %-ile Heavy Industrial	Mean Heavy Industrial	90th %-ile Heavy Industrial	Mean Site-Wide	S-1 Sediment 12/15/00	S-1 Sediment 11/12/07	S-2 Sediment 12/15/00	S-2 Sediment 11/12/07	S-3 Sediment 12/15/00	S-3 Sediment 11/04/04	S-3 Sediment 05/02/07	S3-01C Sediment 12/15/00	
Metals (mg/kg)													
Arsenic	14	19	47	14	5.2	4.4	7.5	4.6	38	26	10	4.4	
Cadmium	3.5	3.7	6.8	1.8	2.0	1.8	1.4	1.1	2.9	1.9	1.6	0.12	
Chromium	73	145	253	106	49	122	64	95	144	189	79	12	
Copper	161	6,110	6,511	502	137	214	316	115	1,050	1,360	321	27	
Lead	192	305	817	312	145	312	211	256	454	600	206	8.6	
Mercury	0.17	0.32	0.45	0.17	--	0.08	--	0.20	--	--	0.24	--	
Nickel	44	54	93	45	--	52	--	39	--	--	44	--	
Zinc	1,220	3,180	3,873	868	638	1,550	584	630	985	752	938	83	
Low Molecular Weight PAHs (ug/kg)													
Naphthalene	115	1,040	1,200	201	200 JD	270	50 JD	290	400 JD	64 JD	130	12 U	
Acenaphthylene	95	714	590	37	40 JD	42	20 JD	28	60 JD	37 JU	31	12 U	
Acenaphthene	290	1,024	2,200	127	200 JD	230	30 JD	21	720 U	26 JU	24	12 U	
Fluorene	140	1,110	1,600	571	100 JD	130	20 JD	26	3,600 D	72 JD	47	12 U	
Phenanthrene	3,700	12,887	13,000	1,146	1,500 D	950	320 D	320	3,600 D	660 JD	670	12 U	
Anthracene	1,000	3,226	2,300	505	400 JD	230	50 JD	56	2,600 D	140 JD	58	12 U	
2-Methylnaphthalene	85	805	1,100	125	100 JD	180	50 JD	33	400 JD	31 JU	80	1 J	
High Molecular Weight PAHs (ug/kg)													
Fluoranthene	10,000	16,884	33,000	1,904	2,600 D	1,400	690 D	660	5,800 D	1,400 JD	780	3 J	
Pyrene	8,000	21,228	33,000	1,859	2,600 D	1,300	770 D	640	5,500 D	1,200 JD	1,000	3 J	
Benz(a)anthracene	3,100	8,124	22,000	794	1,300 D	470	440 D	220	2,500 D	400 JD	230	2 J	
Chrysene	4,000	12,037	28,000	1,561	2,000 D	880	740 D	520	5,300 D	1,100 JD	390	3 J	
Benzo(b)fluoranthene	5,800	14,690	43,000	1,461	2,000 D	930	780 D	750 X	4,100 D	1,100 JD	570	3 J	
Benzo(k)fluoranthene	2,100	4,434	14,000	885	1,500 D	300	540 D	6 U	3,400 D	270 JD	180	2 J	
Benzo(a)pyrene	4,500	10,463	31,000	1,136	1,900 D	540	670 D	330	3,700 D	490 JD	320	2 J	
Indeno(1,2,3-cd)pyrene	3,600	10,241	27,000	1,027	1,500 D	570	490 D	400	3,200 D	530 JD	500	2 J	
Dibenz(a,h)anthracene	690	1,861	5,300	231	300 JD	88	100 JD	78	800 JD	150 JD	100	24 U	
Benzo(g,h,i)perylene	3,400	9,672	25,000	1,299	1,600 D	810	500 D	690	3,600 D	790 JD	1,100	3 J	
Miscellaneous Semivolatiles (ug/kg)													
3- and 4-Methylphenol	1,300	3,800	6,300	NC	13,000 U	650 UJ	1,900 U	7,100 J	4,000 JD	3,000 JD	680 U	240 U	
Dibenzofuran	135	393	1,200	82	100 JD	100 JD	20 JD	20 JD	200 JD	69 JD	67	12 U	
Di-n-butyl Phthalate	390	678	1,900	NC	--	1,300 UJ	--	1,300 UJ	--	--	840 D	--	
Butyl Benzyl Phthalate	350	989	2,200	2,724	1,500 D	1,200 J	2,500 D	7,600 J	5,000 D	930 JD	680 U	1 J	
Bis(2-ethylhexyl) Phth.	18,000	25,824	48,000	9,900	--	8,700 J	--	9,000 J	--	--	12,000 D	--	
Di-n-octyl Phthalate	60	176	265	NC	13,000 U	13,000 UJ	1,900 U	1,300 UJ	14,000 U	11,000 JD	680 U	2 J	
Polychlorinated Biphenyls (ug/kg)													
Total PCBs	1,380	1,380	1,612	100	--	126	--	30	--	--	144	--	
Total Petroleum Hydrocarbons (mg/kg)													
Gasoline	10	27	38	107	26 Y	13 U	21 Y	13 U	580 Y	210 U	14 U	10 U	
Diesel	404	1361	2604	1,141	400 H	590 DH	300 H	1,300 DH	2,400 H	1,600 JH	1,400 DH	10 U	
Residual Oil	4415	6252	14300	6,443	1,900 O	4,600 DO	2,200 DO	11,000 DO	7,600 DO	8,500 JO	9,300 DO	30 Y	

Legend:

- Concentration greater than average (mean) of heavy industrial stormwater
- Concentration greater than 90th percentile of heavy industrial stormwater
- NC Site-wide mean not calculated due to insufficient detections

Notes:

- NC = Not calculated due to insufficient detections
- Bold value = detected concentration; U = Not detected at indicated limit
- J = Estimated concentration; D = Dilution of sample required

Table 11
Source Control Screening Evaluation Summary
McCall Oil and Chemical

	Concentrations less than Background Levels?	Concentrations less than Ecological SLVs? (See Tables 5, 6, 7)	Site Average Concentrations below Human Health SLVs? (see Tables 5, 6, 7)	SCMs Implemented and Effective? (see Table 8)	Concentrations Similar/ Lower than Comparable Sites? (see Tables 9, 10)	Lack of Evidence of Impacts to Willamette River? (see Table 3)
	1A	1B	1C	2	3	4
STORMWATER						
Metals						
Arsenic	YES					
Cadmium	YES					
Chromium	YES					
Copper	NO	NO	YES	YES	YES	
Lead	NO	NO	YES	YES	YES	
Manganese	YES (a)					
Mercury	N/D					
Nickel	YES (b)					
Silver	YES					
Zinc	NO	NO	YES	YES	YES	YES
Organics						
LPAHs	n/a	YES	YES			
HPAHs	n/a	YES	NO	YES (d)	YES	YES
Dibenzofuran	n/a	YES	YES			
DEHP	n/a	YES (c)	YES	YES (d)	YES	YES
Other Phthalates	n/a	YES	YES			
PCBs	n/a	N/D	N/D			
TPH	n/a	YES (e)	YES (e)			
GROUNDWATER						
Metals						
Arsenic	NO	YES	NO	n/a	YES (m)	YES
Chromium	NO	YES (f)	YES			
Copper	NO	YES (f)	YES			
Organics						
LPAHs	n/a	YES	YES			
HPAHs	n/a	YES	NO	n/a	n/a	YES
Dibenzofuran	n/a	YES	YES			
Phthalates	n/a	YES	YES			
VOCs	n/a	n/a	YES (g)			
CATCH BASIN SEDIMENT						
Metals						
Arsenic	NO	NO	NO	YES (d)	YES	YES
Cadmium	NO	YES	NO	YES (d)	YES	
Chromium	NO	NO	n/a	YES (d)	YES	YES
Copper	NO	NO	n/a	YES	YES	YES
Lead	NO	NO	NO	YES	YES	
Manganese	YES					
Mercury	NO	YES	NO	YES (d)	YES	
Nickel	NO	NO	n/a	YES (d)	YES	
Silver	NO	YES	n/a	YES (d)	YES	
Zinc	NO	NO	n/a	YES	YES	YES
Organics						
LPAHs	n/a	NO	n/a	YES (d)	YES (h)	YES
HPAHs	n/a	NO	YES	YES (d)	YES	YES
Dibenzofuran	n/a	n/a	n/a	YES (d)	YES	YES
Phthalates	n/a	YES	NO	YES (d)	YES (i)	YES
PCBs	n/a	YES	NO	YES (d)	YES	YES
TPH	n/a	n/a	n/a	YES (k)		

Table 11
Source Control Screening Evaluation Summary
McCall Oil and Chemical

Notes:

- (a) Only 1 in 14 samples (at 169 ug/L) was slightly above background (150 ug/L), and dissolved conc. (46 ug/L) was well below.
 - (b) Only 1 in 14 samples (at 6.9 ug/L) was slightly above background (5.5 ug/L), and dissolved conc. (2.8 ug/L) was well below.
 - (c) NRWQC Footnote X: "There is a full set of aquatic life toxicity data that show DEHP is not toxic to aquatic organisms at or below its solubility limit."
 - (d) Statistically significant reductions in TSS concentrations in site stormwater are expected to reduce the particulate fraction of other contaminants in site runoff, including suspended metals and hydrophobic organics.
 - (e) Compliance with NPDES permit limit for oil and grease is assumed to be protective of water quality for petroleum.
 - (f) Well installation was suspected cause of anomalously high concentrations of total metals during first two monitoring events (Oct-01 and Mar-02) at MW-7 and MW-8. Concentrations have since dropped by approximately two orders of magnitude.
 - (g) Vinyl chloride was detected in only 3 out of 28 samples, at concentrations (0.8 to 1.4 ug/L) that are above the tap water PRG (0.015 ug/L) but below the MCL (2 ug/L) and fish consumption criterion (2.4 ug/L).
 - (h) Includes one anomalously high fluorene concentration, but site-wide fluorene concentration is still below average.
 - (i) DEHP and Total Phthalate concentrations are below average, although other phthalates are above average.
 - (k) Oil-water separator installed in tank area, and site stormwater in compliance with NPDES oil and grease limit.
 - (m) Based on mass loading comparison to Willamette River background load.
- N/D = Not Detected; n/a = Not Applicable

FIGURES

I:\CAD\Jobs\1030162-McCall_Portland\103016201\103016201-12.dwg FIG 1
May 09, 2003 2:16pm cdavidson

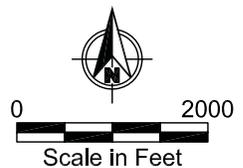
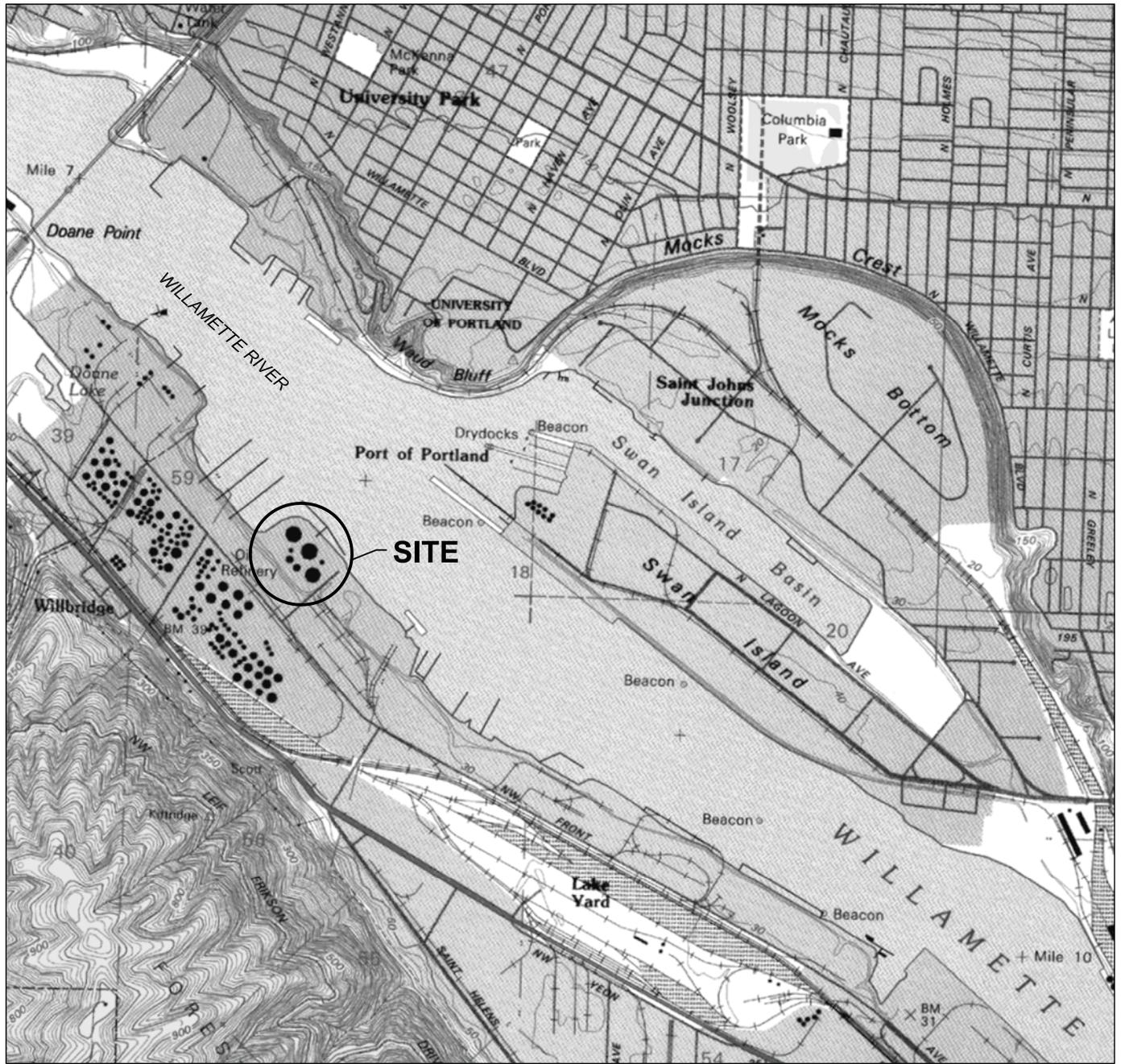
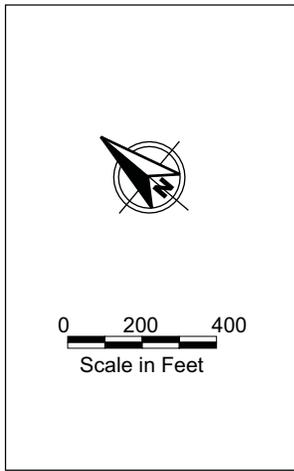


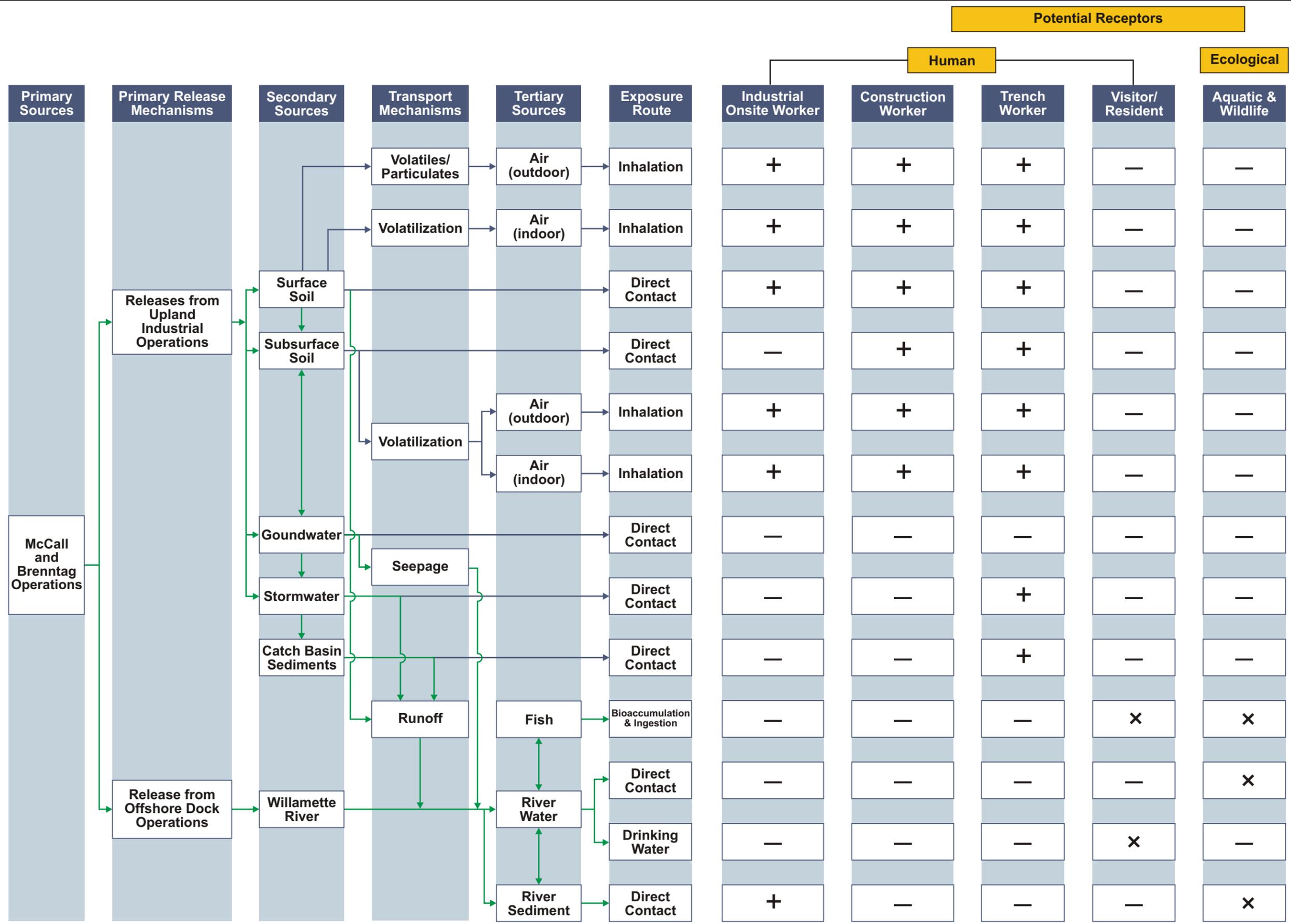
Figure 1
Vicinity Map
McCall Oil and Chemical



* Land use based on 1993 assessment records

Figure 2
 Land Use Map
 McCall Oil
 Portland, Oregon

01/14/2009 CVD K:\Jobs\030162-McCaill_Portland\03016201103016AA.cdr



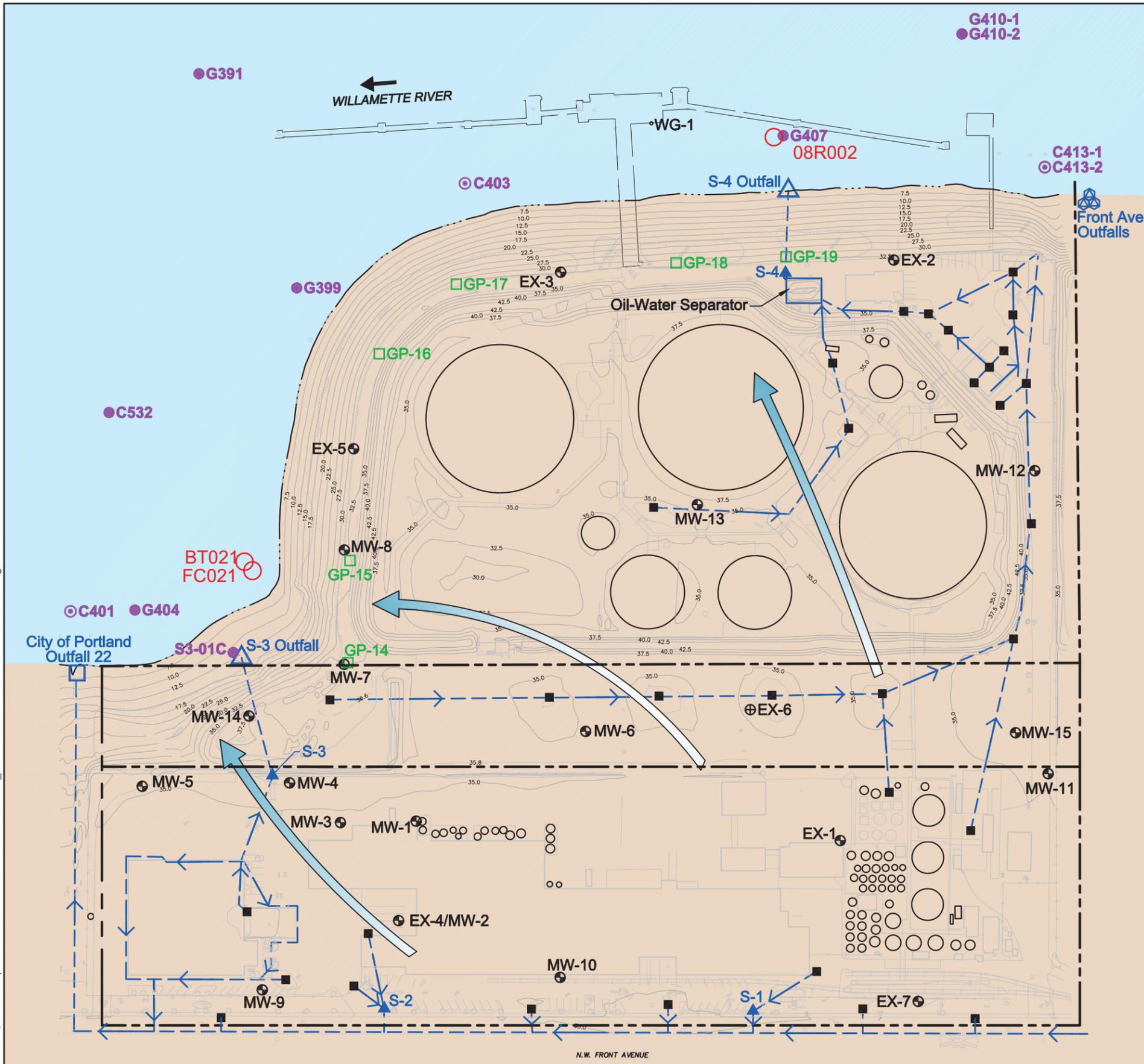
× Source Control Evaluation Report
 + RI Report

→ Source Control Exposure Pathway

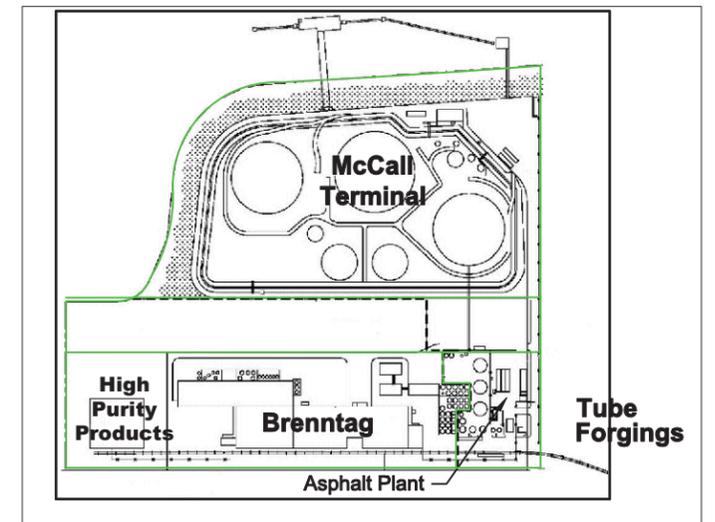
Figure 3
 McCall Oil & Chemical Conceptual Site Model



Jan 20, 2009 3:27pm cdavidson K:\jobs\030162-McCall_Portland\0301620103016201-RP-001.dwg FIG 4



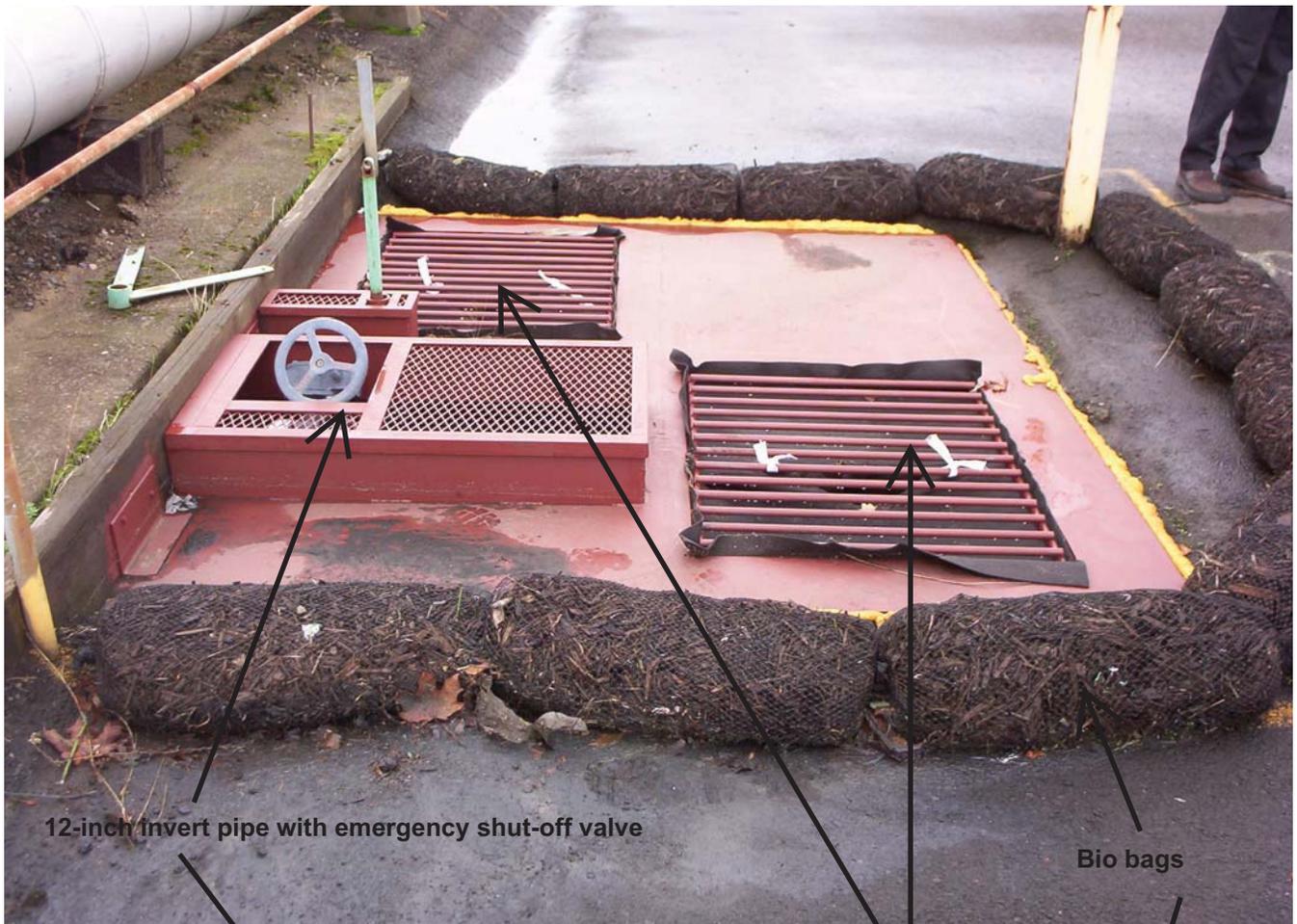
- Generalized Groundwater Flow Direction
 - Property Boundary (approximate)
 - Storm Drain Line (approximate)
 - Front Ave LLP Outfall
 - McCall / Brenntag Outfall
 - City of Portland Outfall
 - Catch Basin
 - LWG Sediment Sample
 - LWG Bioassay Sample
 - LWG Tissue Sample
 - Monitoring Well
 - Decommissioned Monitoring Well
 - Stormwater/Catch Basin Sample
 - Bank Surface Soil Sample
 - Vegetation
 - Building
 - Tank
- Scale in Feet



Note: Figure prepared from base map provided by IT Corporation.

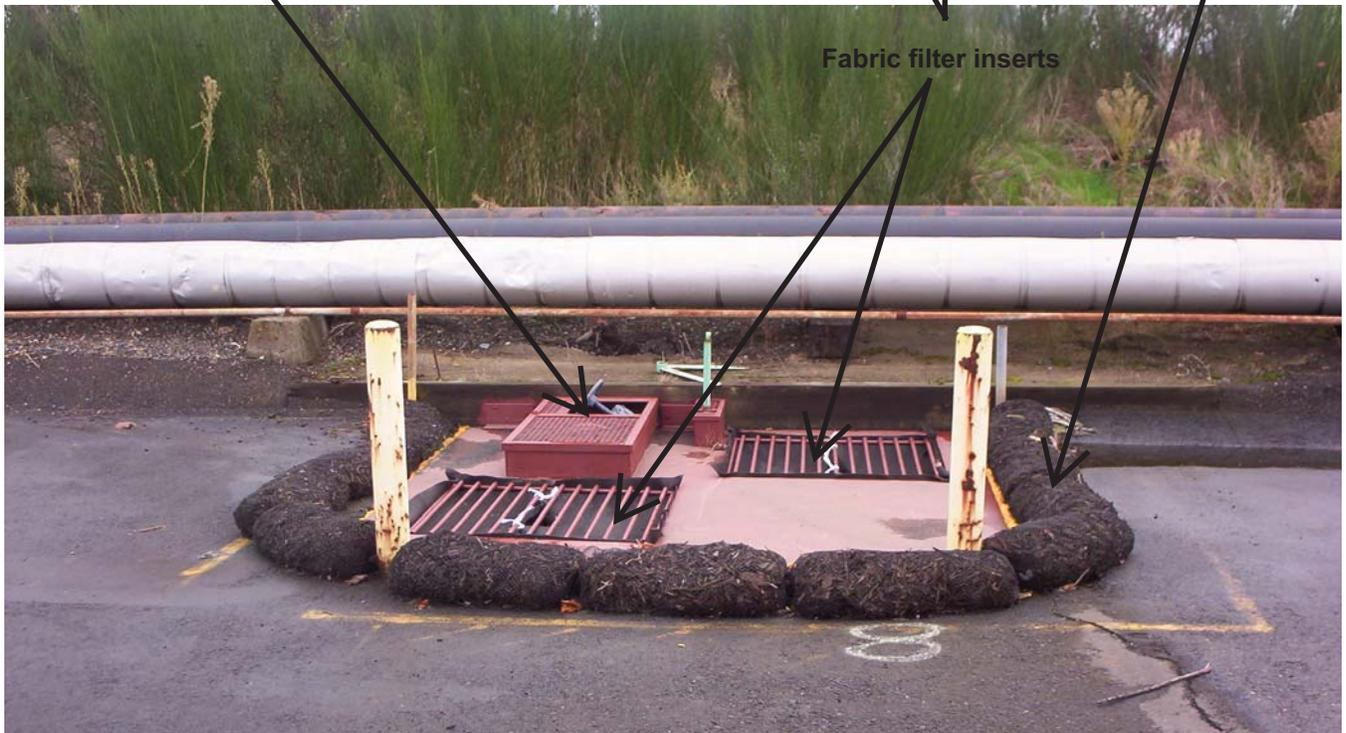
Horizontal Datum
Coordinates are on a local plane and are assumed.

Elevation Datum
Elevations are based on City of Portland Benchmark #2528.
Elevation = 34.64 Feet



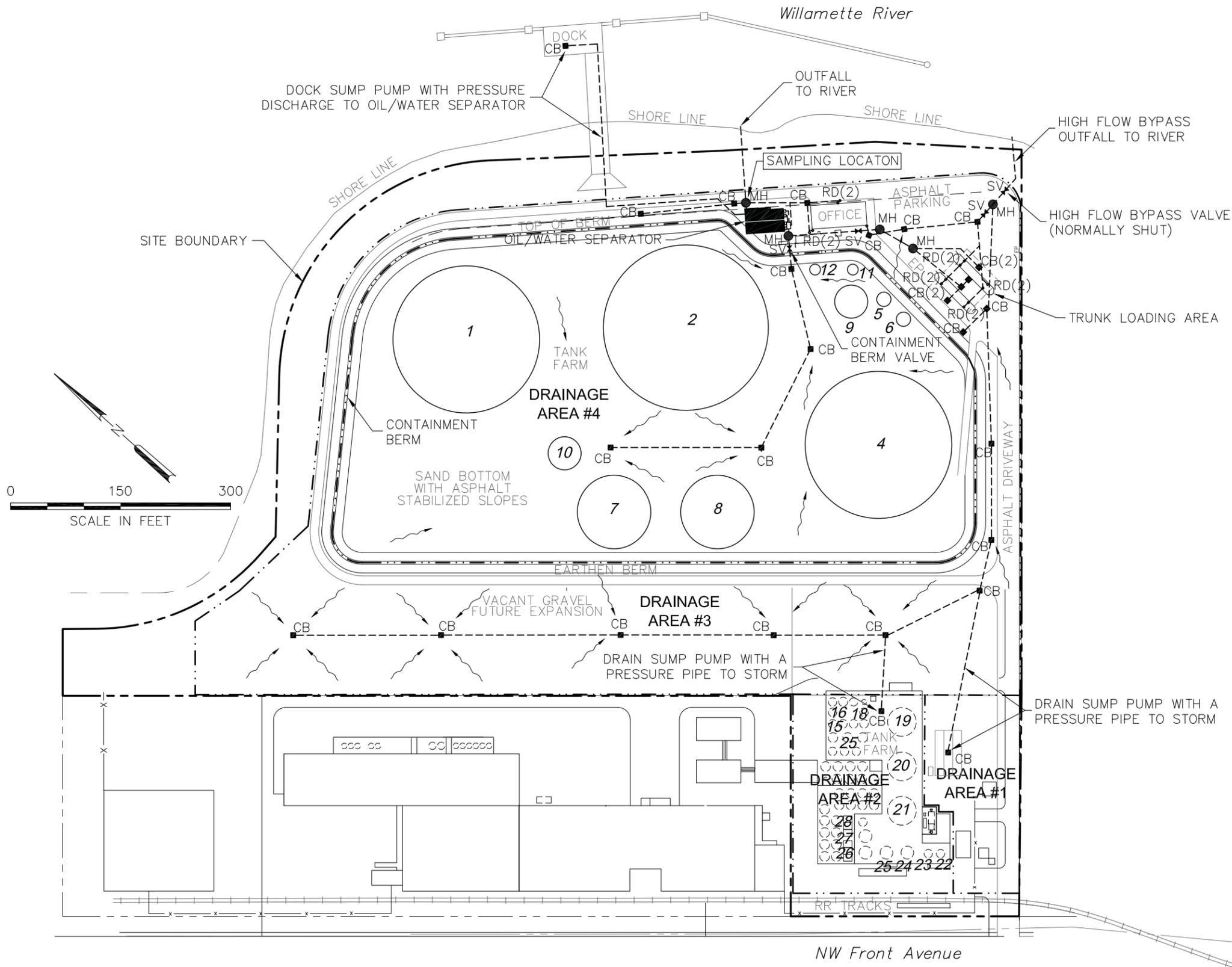
12-inch invert pipe with emergency shut-off valve

Bio bags



Fabric filter inserts

APPENDIX A
STORMWATER DRAINAGE BASIN MAPS



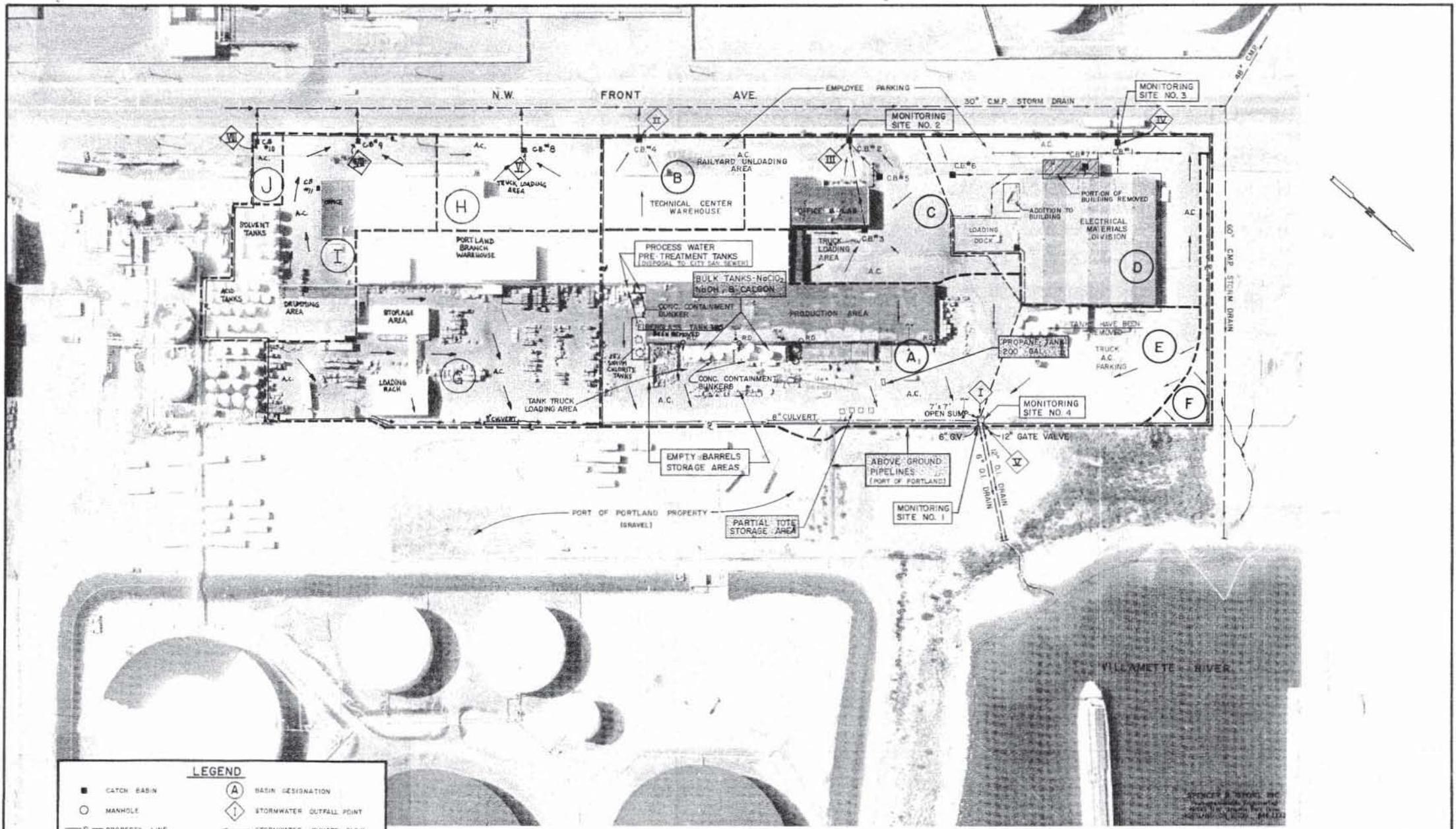
- LIQUID PRODUCT STORAGE**
- 1=267,790 BARRELS ASPHALT
 - 2=280,650 BARRELS ASPHALT
 - 4=222,808 BARRELS BUNKER
 - 5=647 BARRELS BIODIESEL
 - 6=647 BARRELS BIODIESEL
 - 7=63,303 BARRELS HS DIESEL
 - 8=63,821 BARRELS ULS DIESEL
 - 9=11,176 BARRELS BUNKER
 - 10=11,176 BARRELS HS DIESEL
 - 11=481 BARRELS SLOP OIL
 - 12=239 BARRELS SLOP OIL
 - 15=453 BARRELS FLUX OIL
 - 16= 719 BARRELS FLUX OIL
 - 18=116 BARRELS EMPTY
 - 19=10,184 BARRELS ASPHALT
 - 20=10,190 BARRELS ASPHALT
 - 21=10,191 BARRELS ASPHALT
 - 22=451 BARRELS EMULSION
 - 23=453 BARRELS PIT STOP
 - 24=2,236 BARRELS PITCH
 - 25=2,231 BARRELS PITCH
 - 26=2,219 BARRELS RUBBER
 - 27=2,219 BARRELS RESIN
 - 28=120 BARRELS FUEL
 - 29=272 BARRELS UNICHEM
 - 30=170 BARRELS ACID

- DRAINAGE AREAS**
- 1=0.7 ACRES
 - 2=1.2 ACRES
 - 3=8.8 ACRES
 - 4=8.3 ACRES

- MH = STORM MANHOLE
- CB = STORM CATCH BASIN
- RD = ROOF STORM DRAIN
- ✕SV = STORM SHUT-OFF VALVE
- ~ = DRAINAGE PATTERN
- - - = STORM DRAIN
- · - · - = DRAINAGE AREA LIMITS

<p>TRT ENGINEERING, INC. 2636 S.E. MARKET STREET PORTLAND, OREGON 97214 (503) 235-7592</p>	<p>MCCALL OIL AND CHEMICAL CORPORATION 5480 NW FRONT AVENUE PORTLAND, OREGON STORMWATER POLLUTION CONTROL PLAN</p> <p style="text-align: center;">SITE PLAN</p>	<p>DRAWING NO. 1 PROJECT NO. MC01</p>
---	---	--

MCCALLSP01 12/28/06



LEGEND

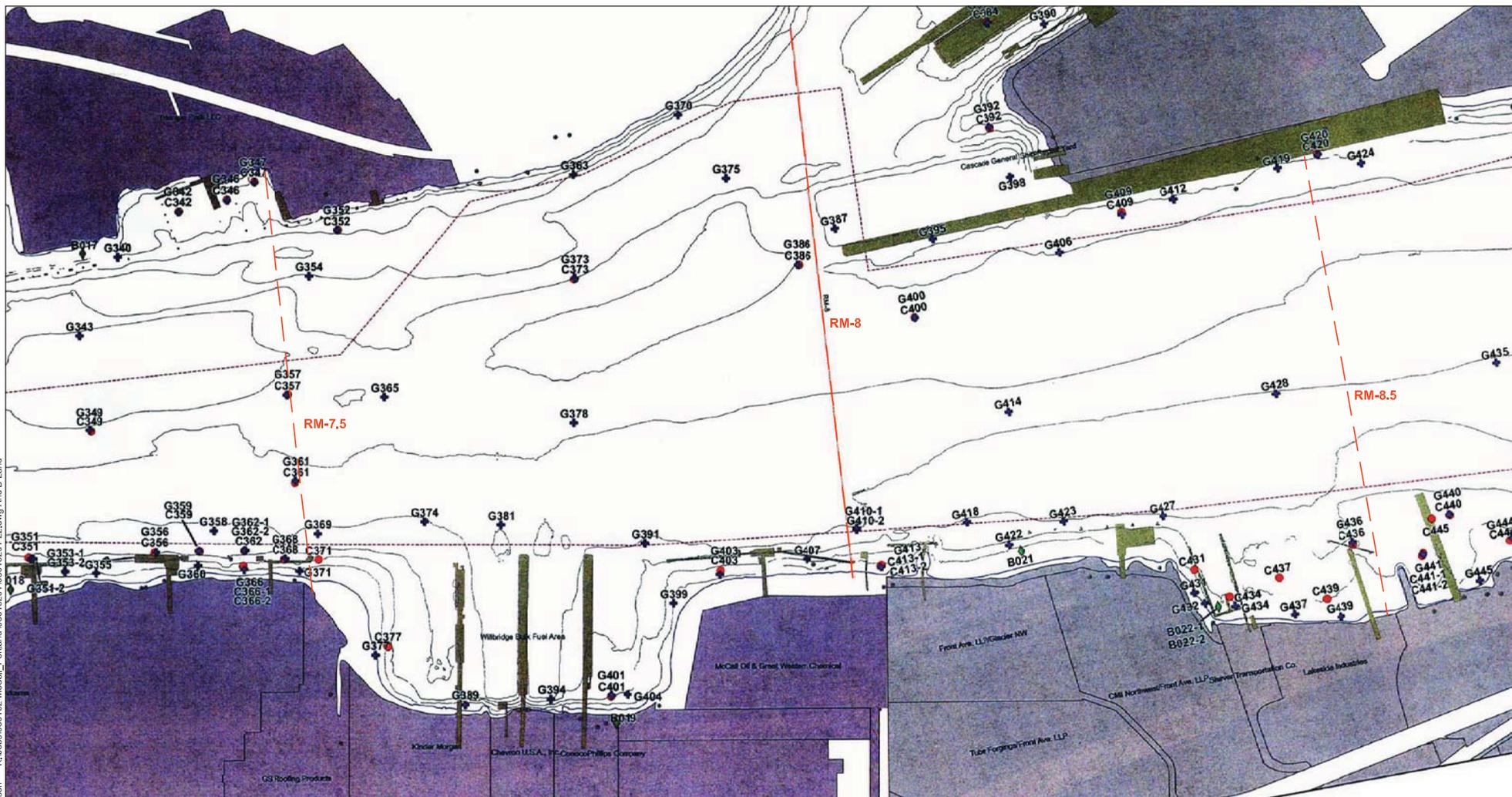
■	CATCH BASIN	Ⓐ	BASIN DESIGNATION
○	MANHOLE	Ⓐ	STORMWATER OUTFALL POINT
—	PROPERTY LINE	→	STORMWATER RUNOFF FLOW DIRECTION
—	STORM DRAIN	XX	SIGNIFICANT MATERIAL
—	DITCH / SWALE	▨	BERM (SOIL)
- - -	BASIN BOUNDARY	▨	BERM (FILTER ROCK)

GREAT WESTERN CHEMICAL CO.		
STORMWATER MANAGEMENT PLAN		
Scale: 1" = 50'	Date: JAN 1993	Revised July 1998
Design: R.D.P.	ABIQUA ENGINEERING INC.	Job No:
Drawn: J.W.M.	P.O. BOX 4155, SALEM, OH 42702	Sheet: 1
Checked: J.L.	(503) 391-2664	

APPENDIX B

**LWG ROUND 2A SEDIMENT AND TISSUE SAMPLE LOCATIONS AND
COI DISTRIBUTIONS**

Jun 26, 2006 3:41 pm cdaivison K:\loba\0301620162016201-22.dwg A:\ncs\land



Legend

- Subsurface Sample Location
- ⊕ Surface Sample Location
- ◆ Beach Sample Location
- Outfall Location

Source: Portland Harbor RI/FS Round 2A Sediment Site Characterization Summary Report Map Folio Draft, July 15, 2005.

Not to Scale



Figure B-1
LWG Round 2A Sample Locations
Willamette River Impact Assessment
McCall Oil and Chemical

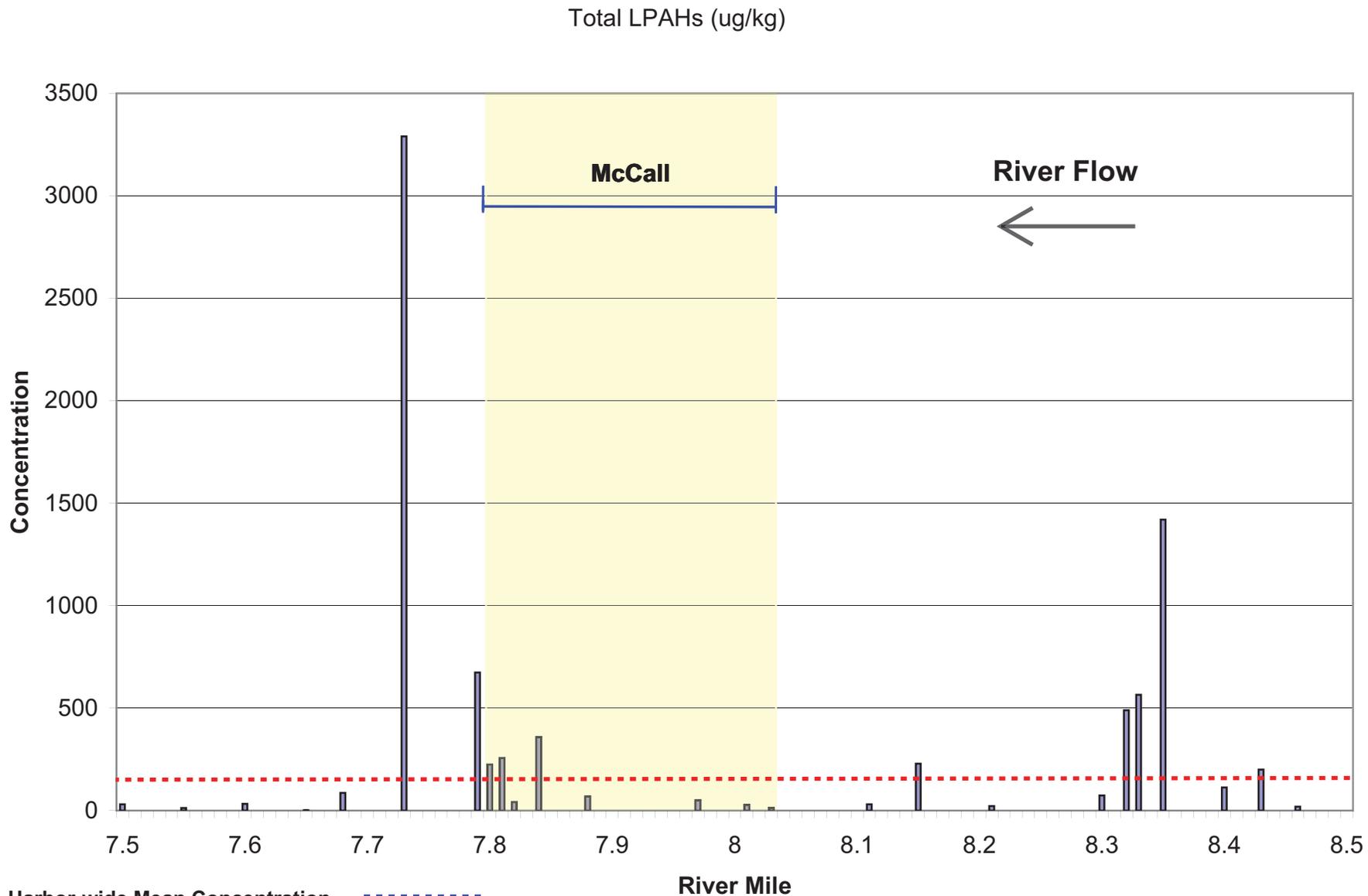
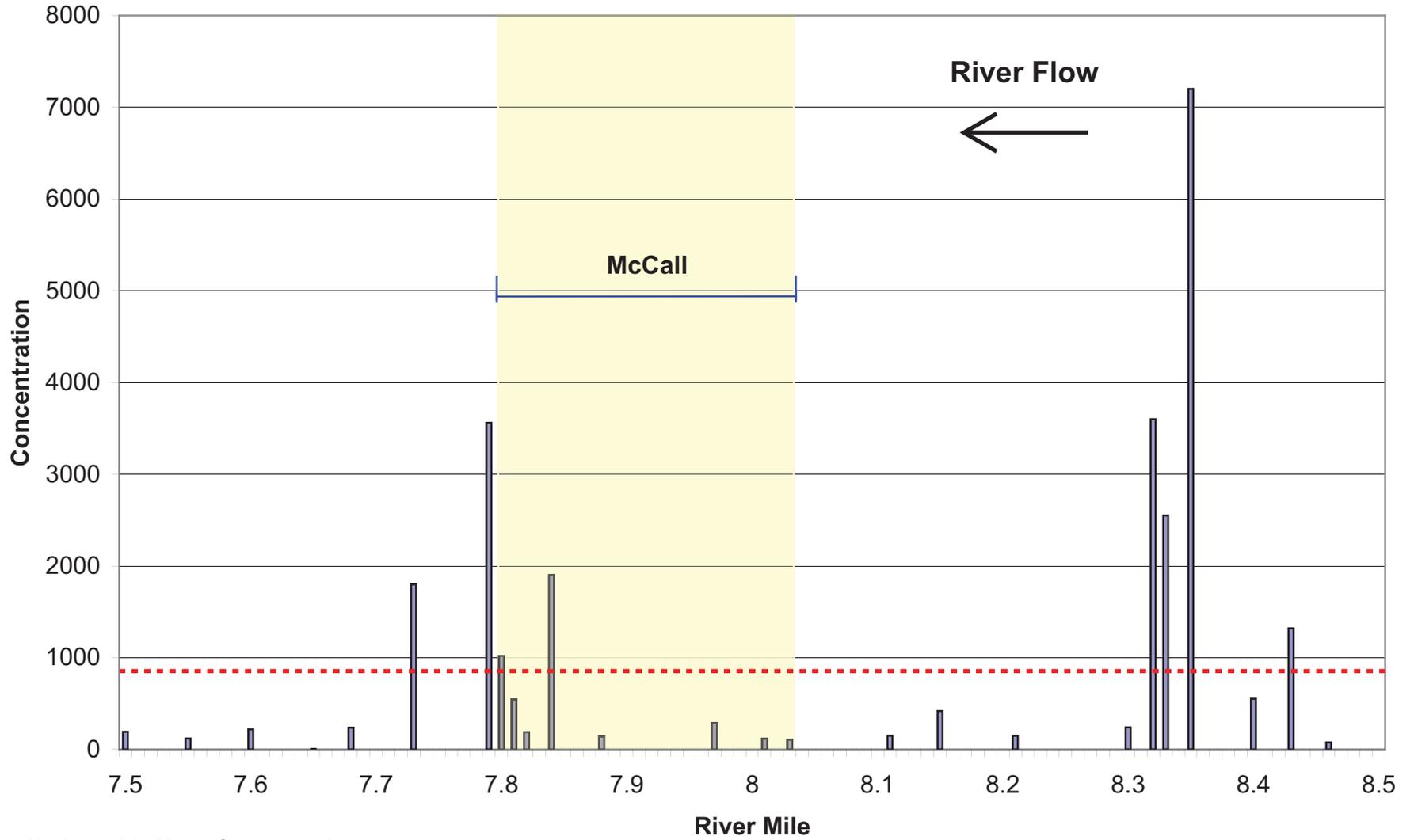


Figure B-2

LWG Sediment Chemistry Data
 McCall Oil and Chemical

Total HPAHs (ug/kg)



Harbor-wide Mean Concentration (34500 ug/kg-not shown)

Harbor-wide Median Concentration

Figure B-3

LWG Sediment Chemistry Data
McCall Oil and Chemical

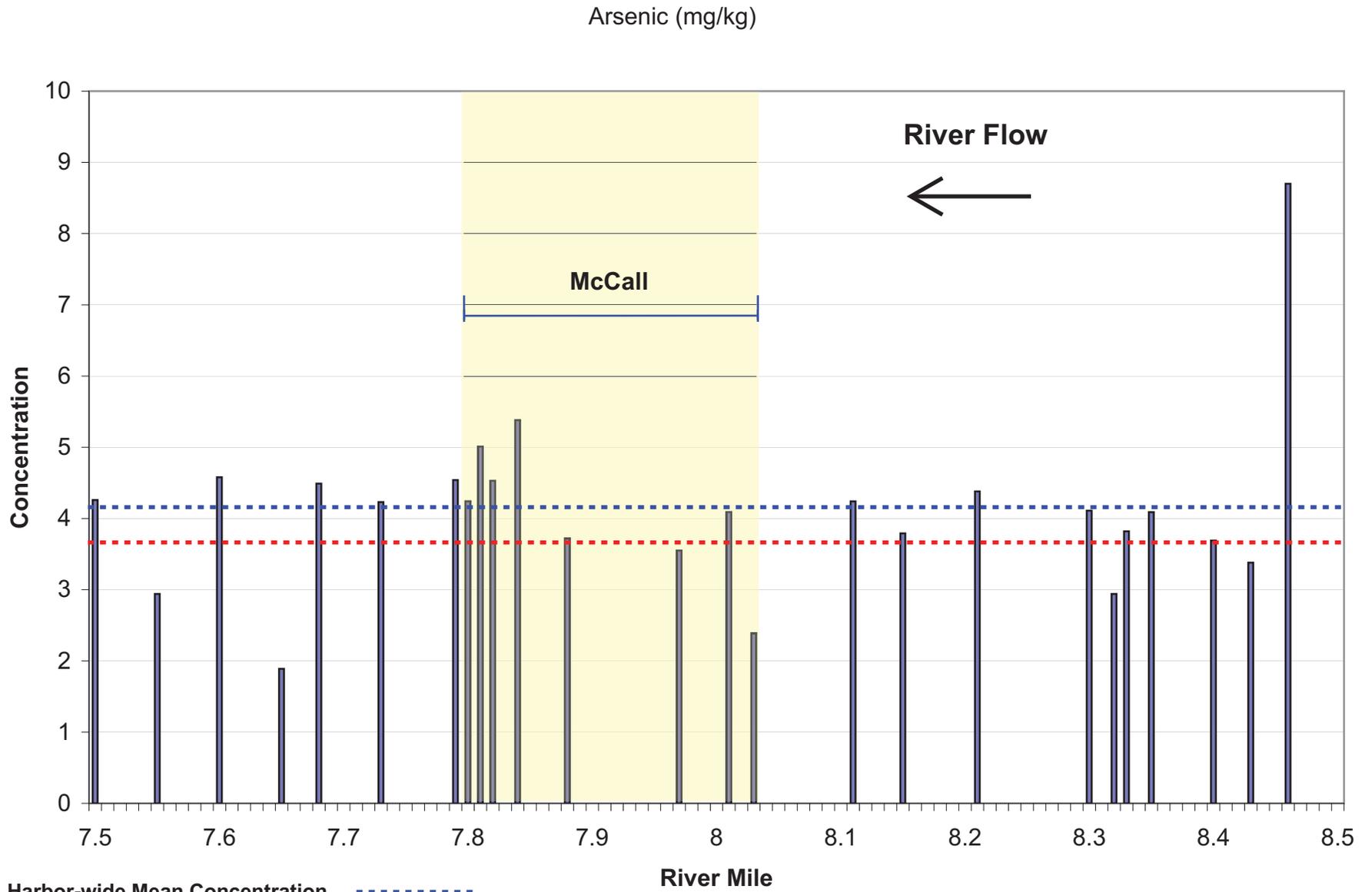
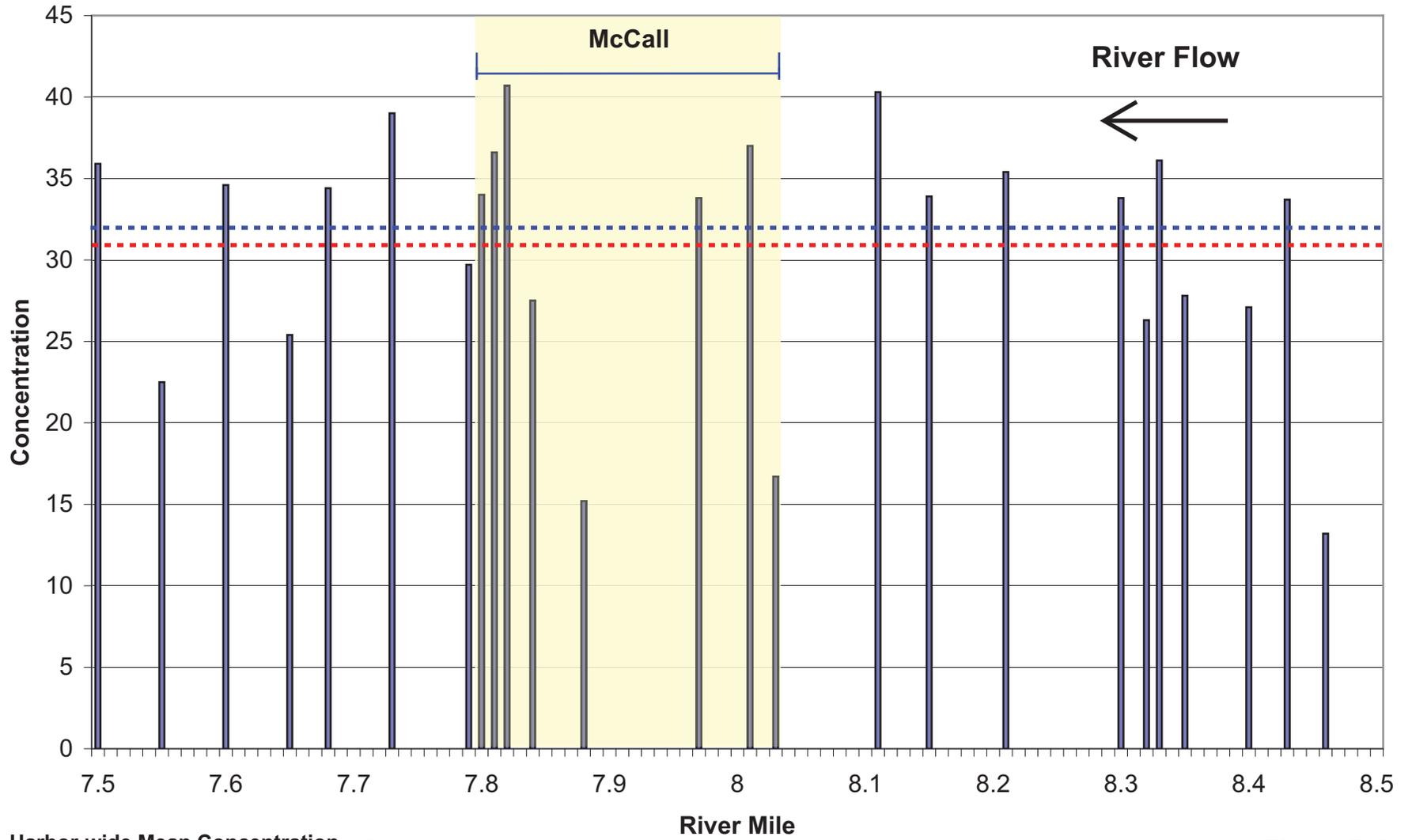


Figure B-4

LWG Sediment Chemistry Data
 McCall Oil and Chemical

Chromium (mg/kg)



Harbor-wide Mean Concentration - - - - -

Harbor-wide Median Concentration -

Figure B-5

LWG Sediment Chemistry Data
McCall Oil and Chemical

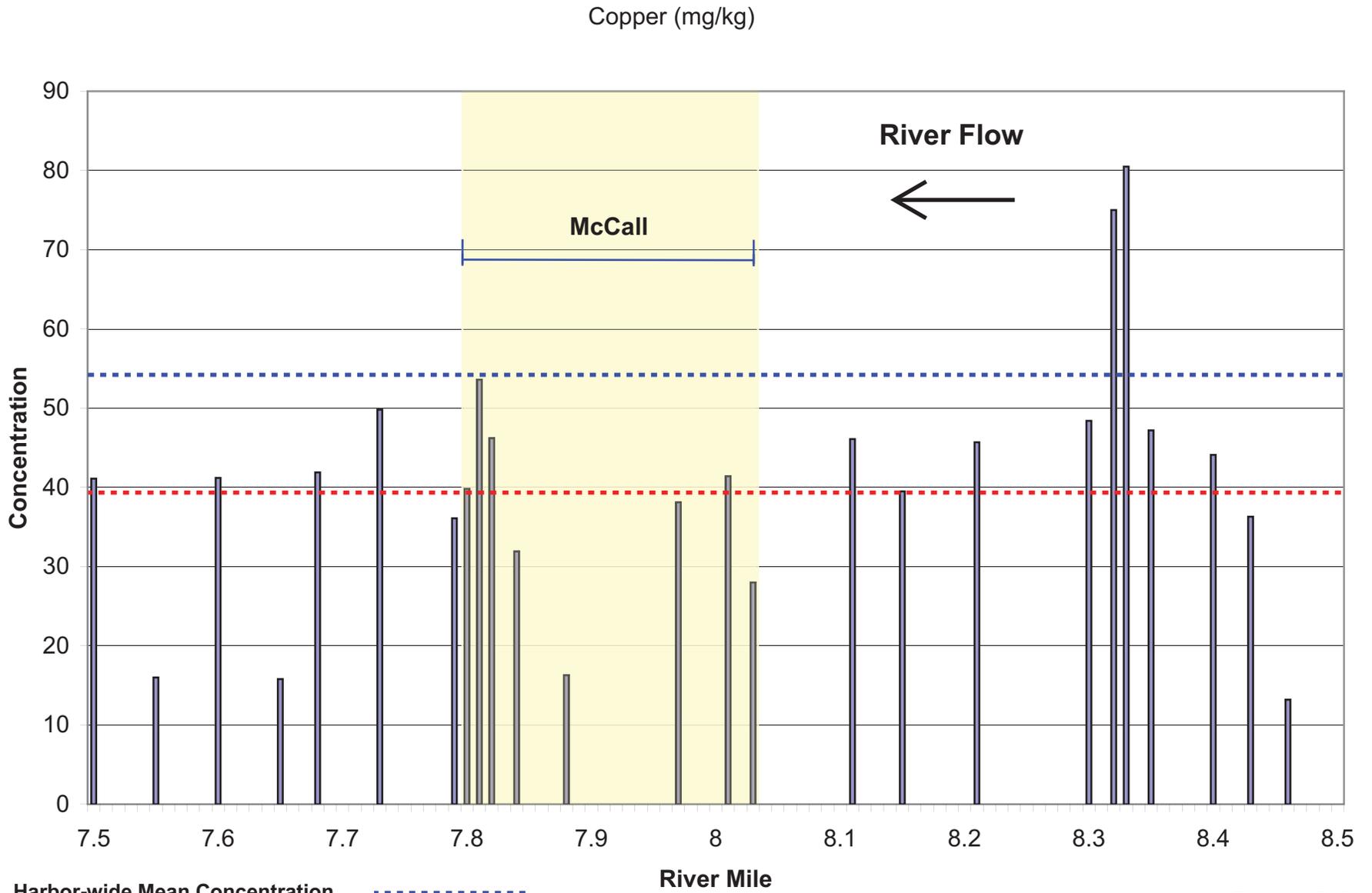


Figure B-6

LWG Sediment Chemistry Data
 McCall Oil and Chemical

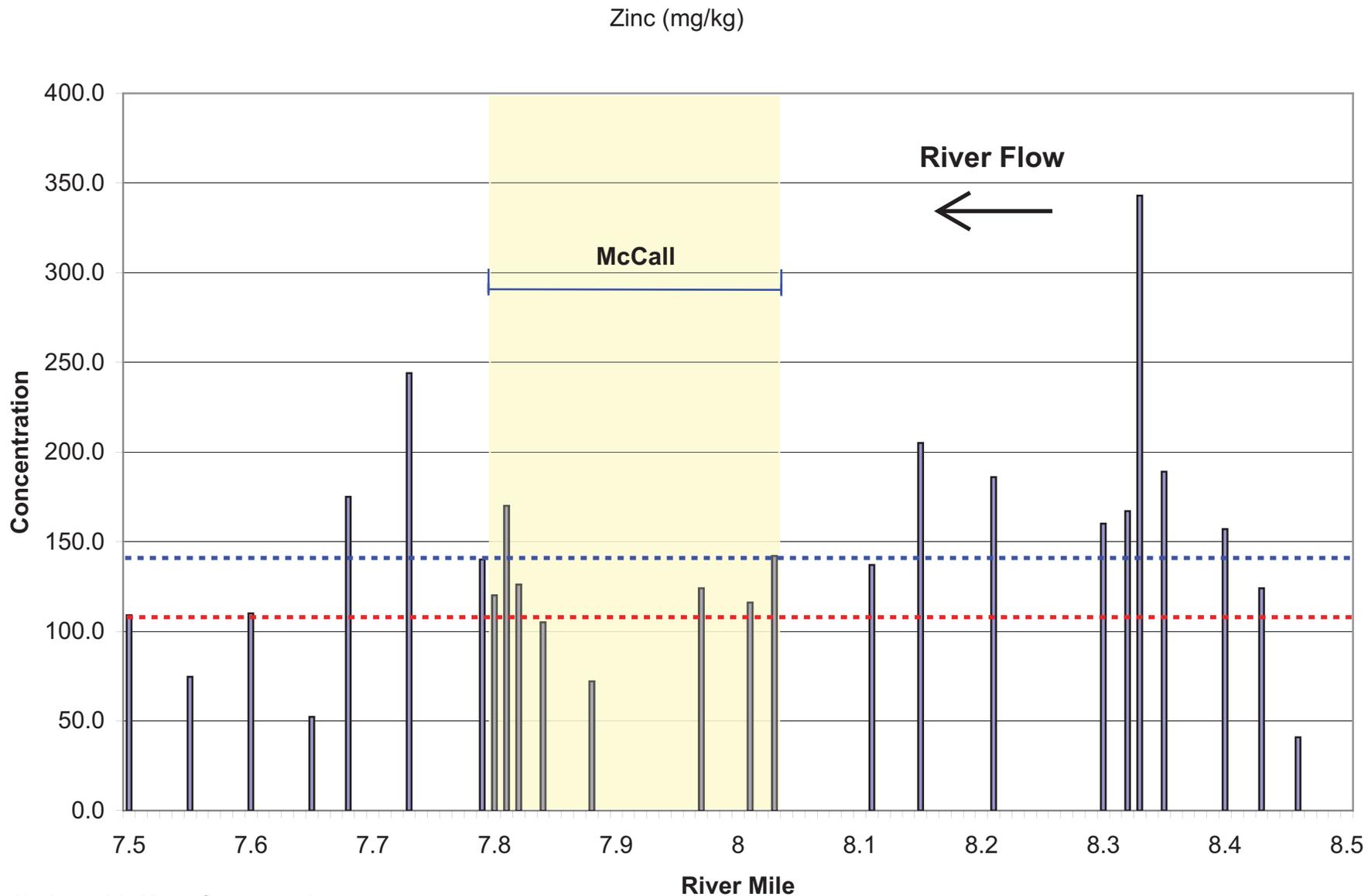
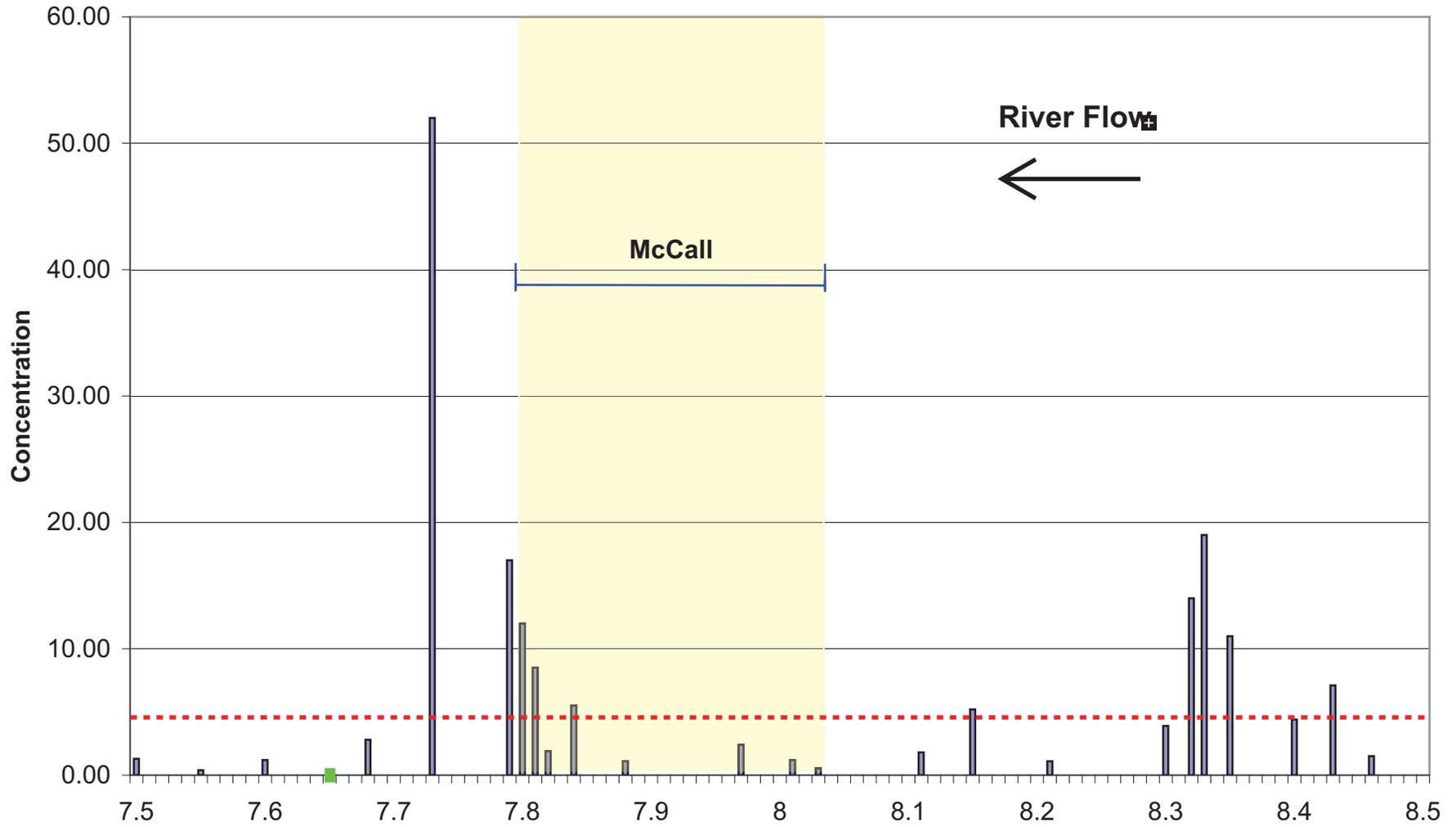


Figure B-7

LWG Sediment Chemistry Data
 McCall Oil and Chemical

Dibenzofuran (ug/kg)



Harbor-wide Mean Concentration - - - - -

(283 ug/kg-not shown)

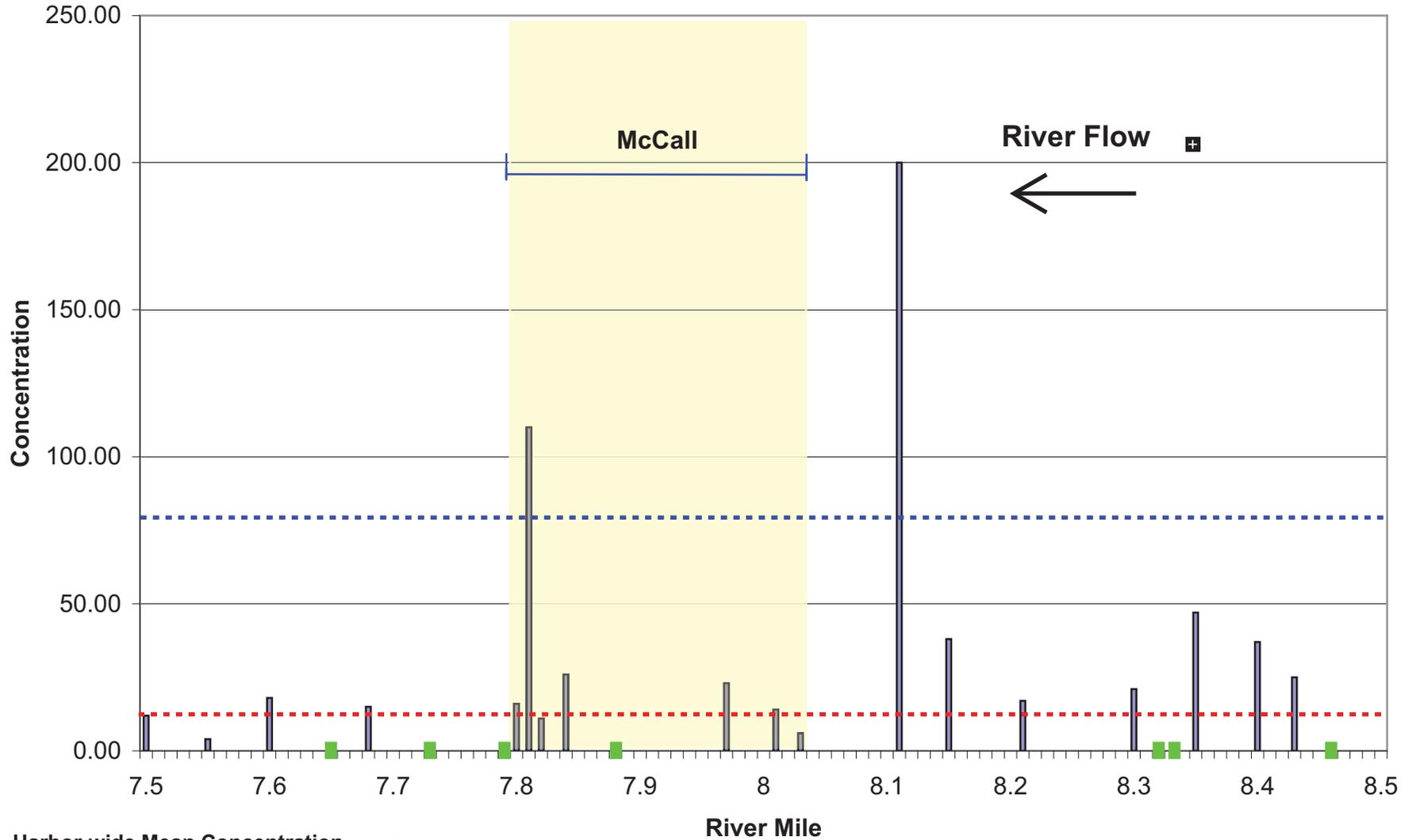
Harbor-wide Median Concentration - - - - -

Analyte Not Detected ■

Figure B-8

LWG Sediment Chemistry Data
McCall Oil and Chemical

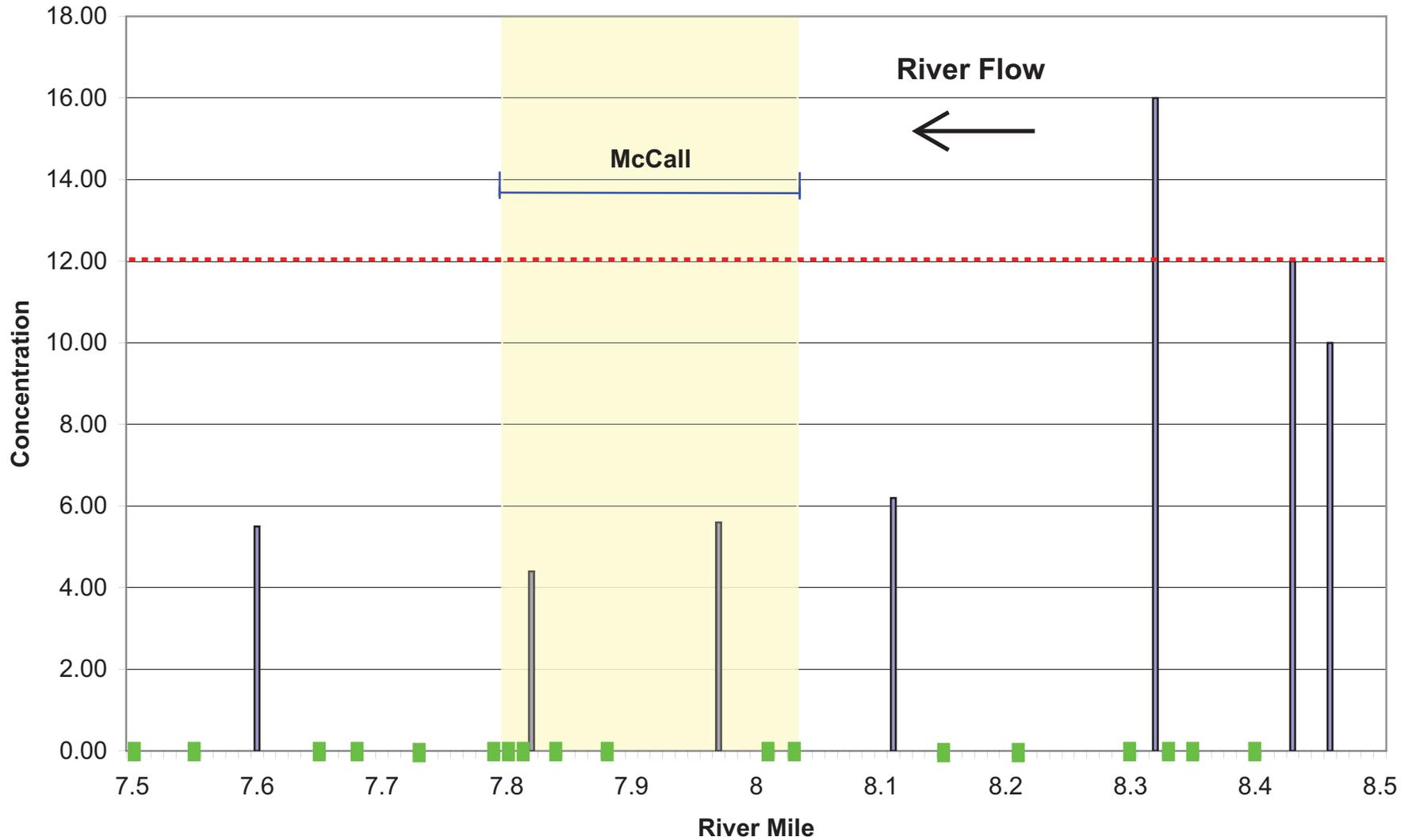
4-methylphenol (ug/kg)



Harbor-wide Mean Concentration - - - - -
Harbor-wide Median Concentration ·····
Analyte Not Detected ■

Figure B-9
LWG Sediment Chemistry Data
McCall Oil and Chemical

Butylbenzyl phthalate (ug/kg)



Harbor-wide Mean Concentration - - - - -
(72.6 ug/kg-not shown) +
Harbor-wide Median Concentration - - - - -
Analyte Not Detected ■

Figure B-10

LWG Sediment Chemistry Data
McCall Oil and Chemical

Di-n-octyl phthalate (ug/kg)

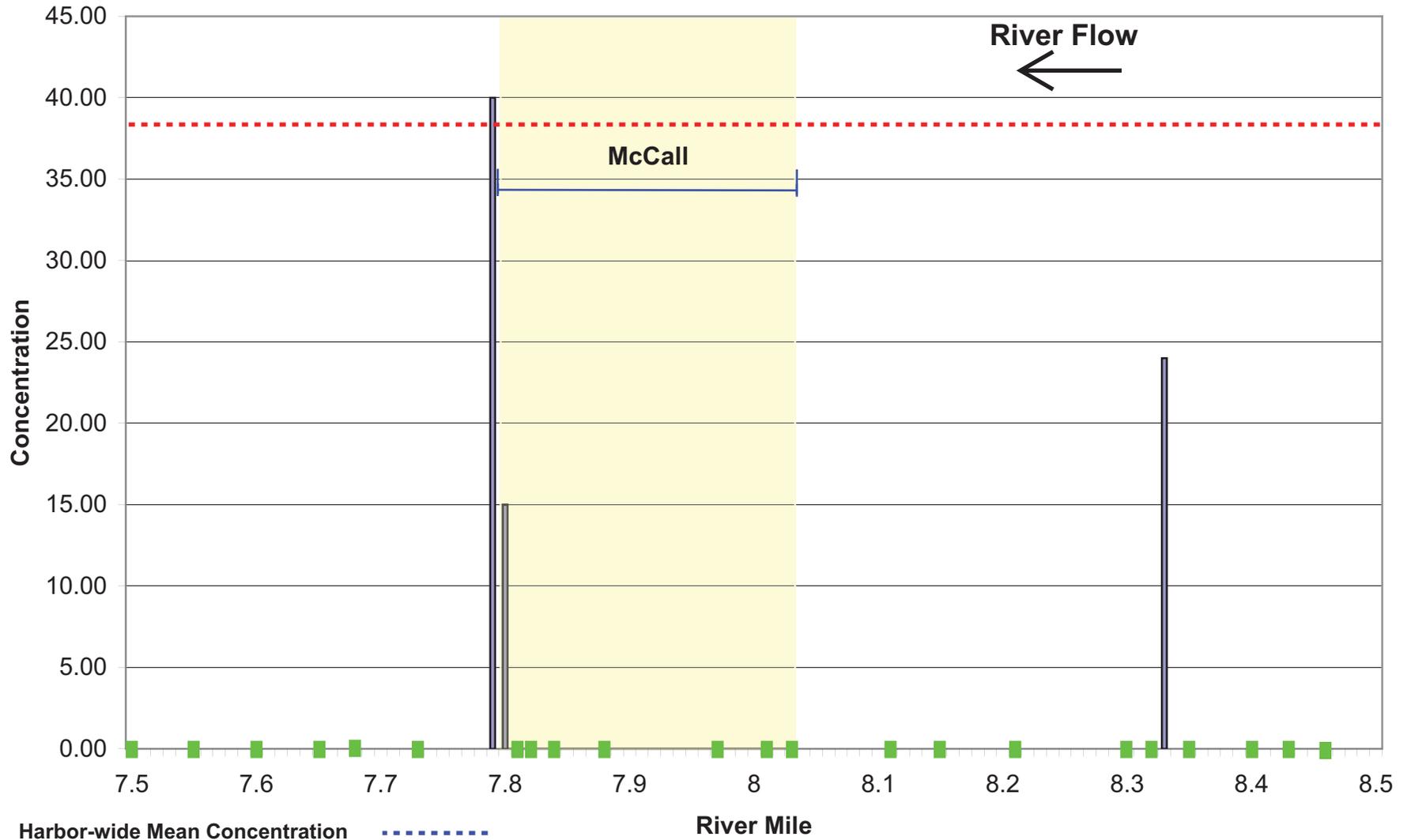
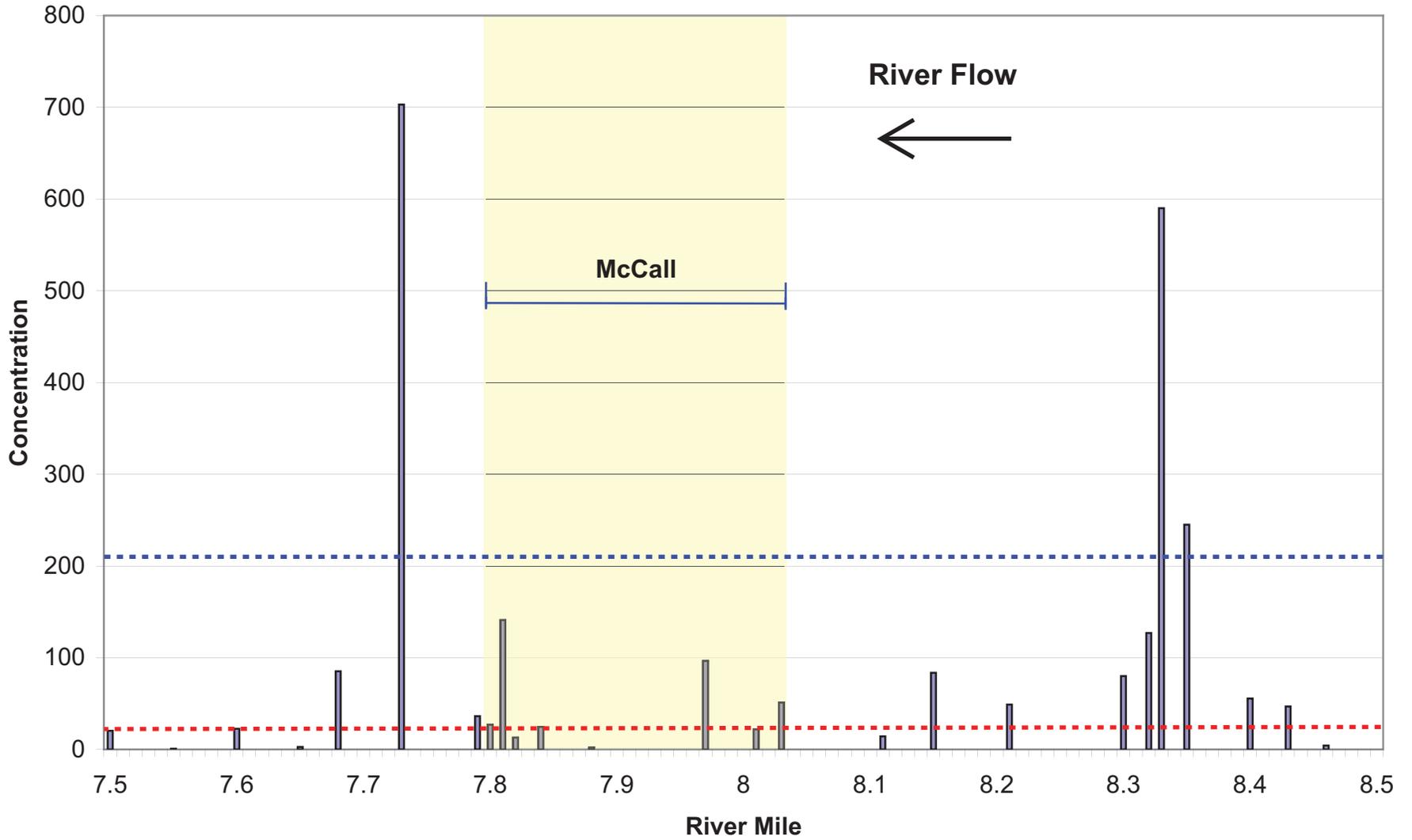


Figure B-11

LWG Sediment Chemistry Data
McCall Oil and Chemical

Total PCBs (ug/kg)



Harbor-wide Mean Concentration - - - - -

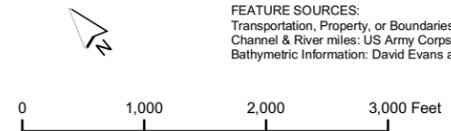
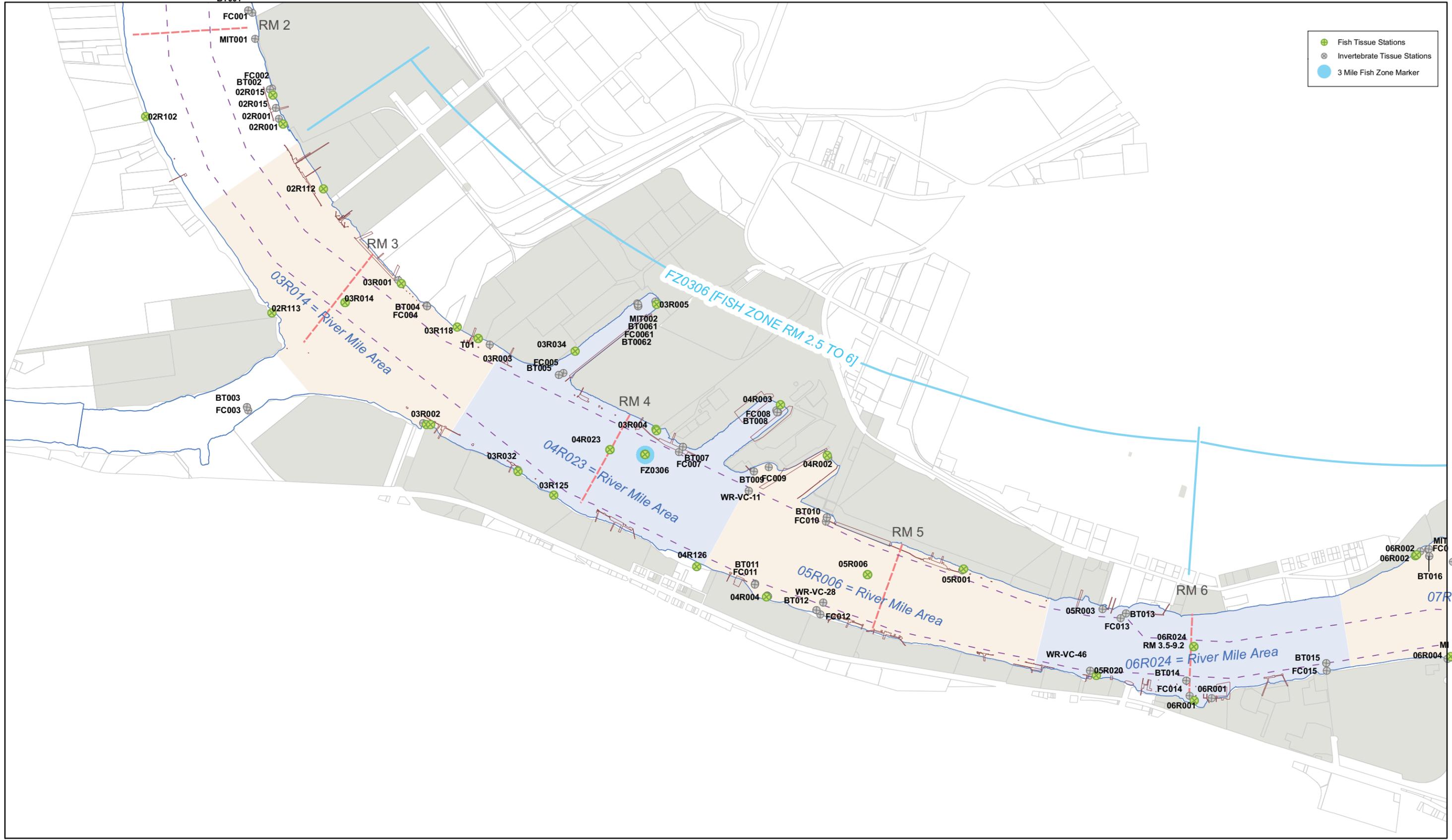
Harbor-wide Median Concentration -



Figure B-12

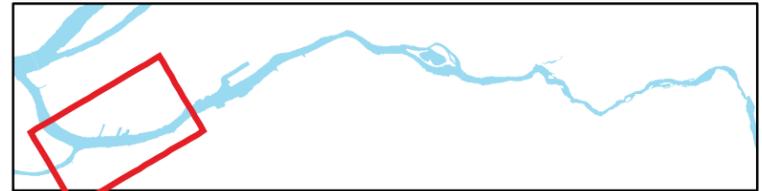
LWG Sediment Chemistry Data
McCall Oil and Chemical

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FEATURE SOURCES:
Transportation, Property, or Boundaries: Metro RLIS .
Channel & River miles: US Army Corps of Engineers.
Bathymetric Information: David Evans and Associates, Inc.

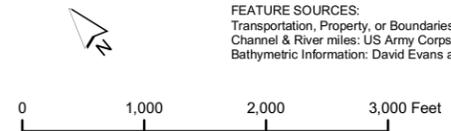
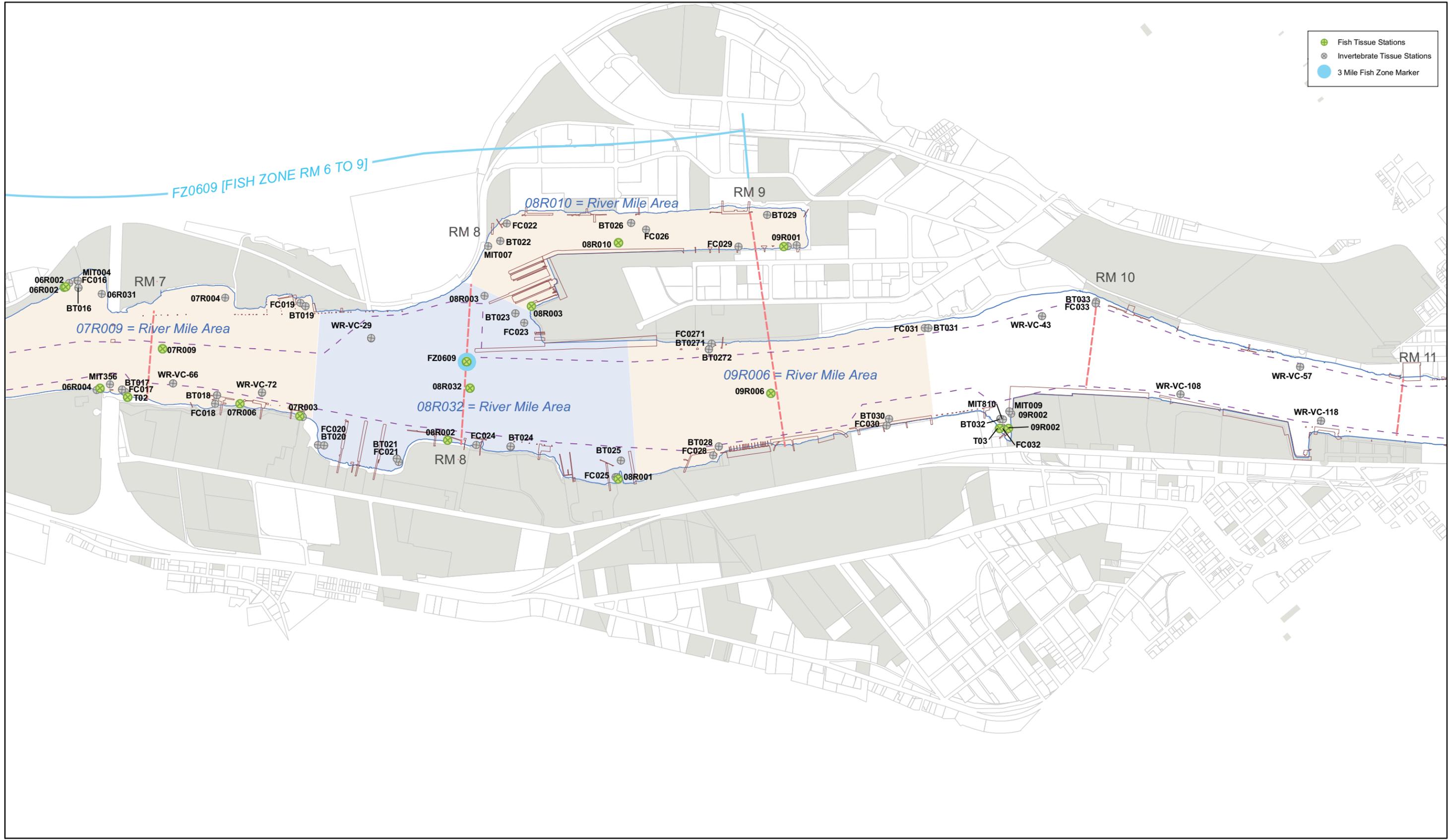
- Navigation Channel
- River Miles
- Docks and Structures
- Waterfront Taxlots
- Upland Sites



Map 2.1-2a
Portland Harbor RI/FS
Comprehensive Round 2 Report
Fish and Invertebrate
Tissue Sampling Locations

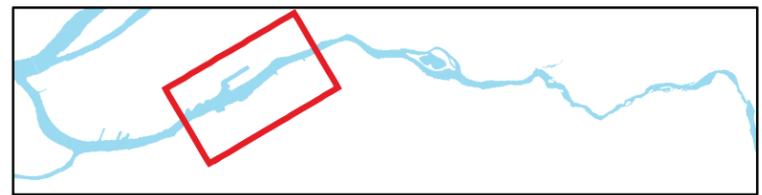
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2/1/2007 -- 1:05:32 PM

- Fish Tissue Stations
- ⊙ Invertebrate Tissue Stations
- 3 Mile Fish Zone Marker



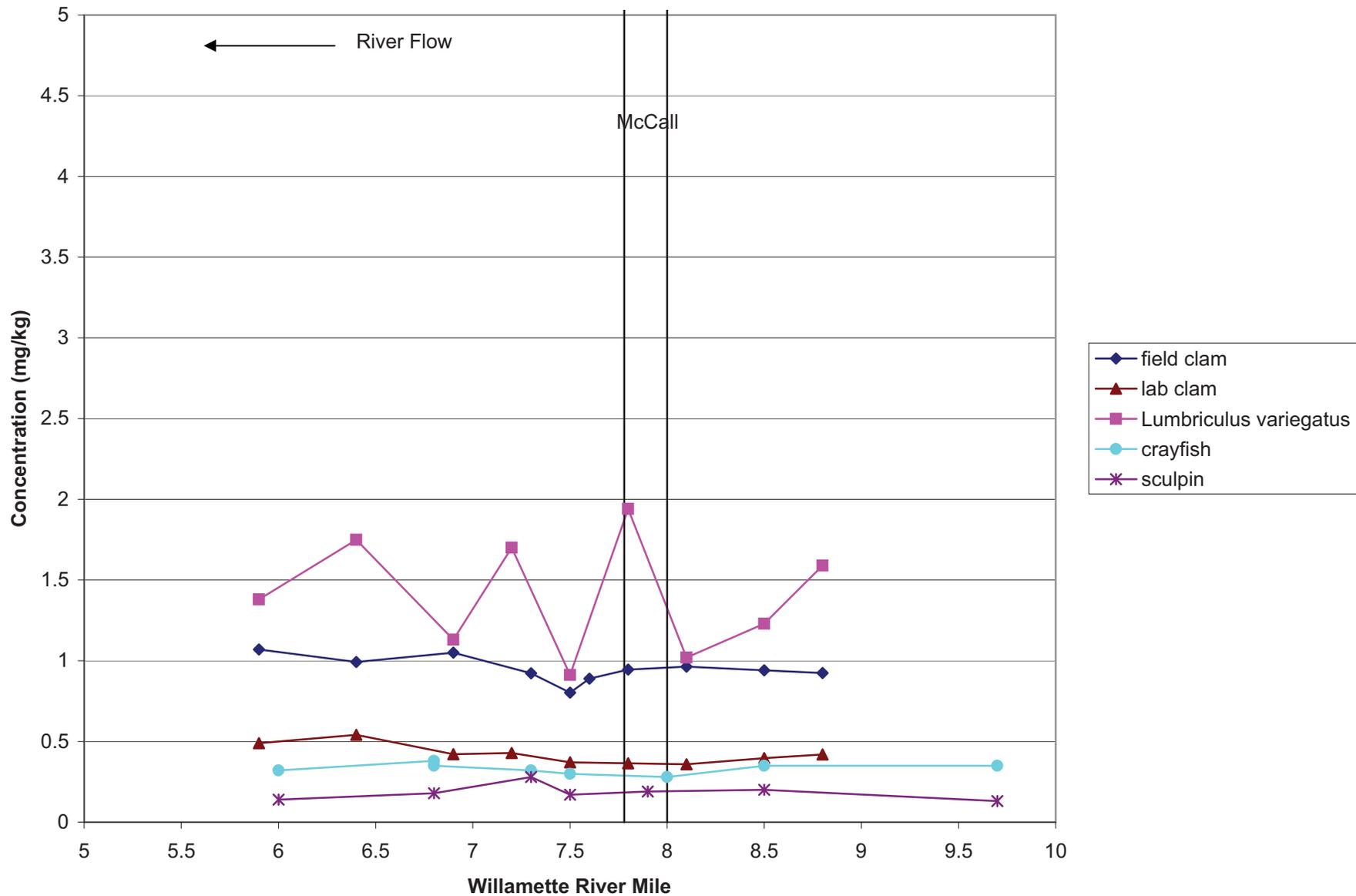
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 Channel & River miles: US Army Corps of Engineers.
 Bathymetric Information: David Evans and Associates, Inc.

- - - Navigation Channel
- - - River Miles
- - - Docks and Structures
- - - Waterfront Taxlots
- - - Upland Sites

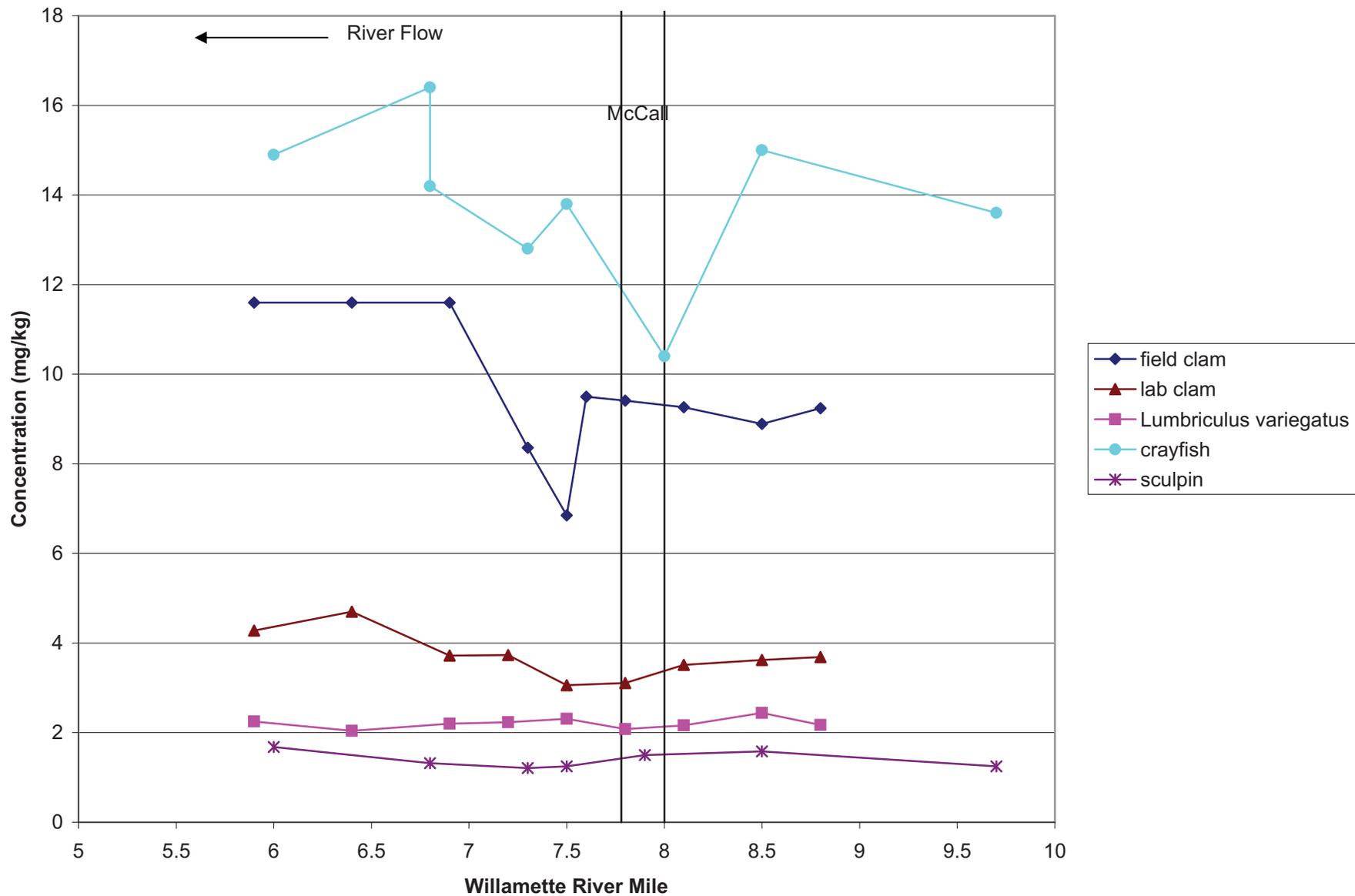


Map 2.1-2b
Portland Harbor RI/FS
Comprehensive Round 2 Report
Fish and Invertebrate
Tissue Sampling Locations

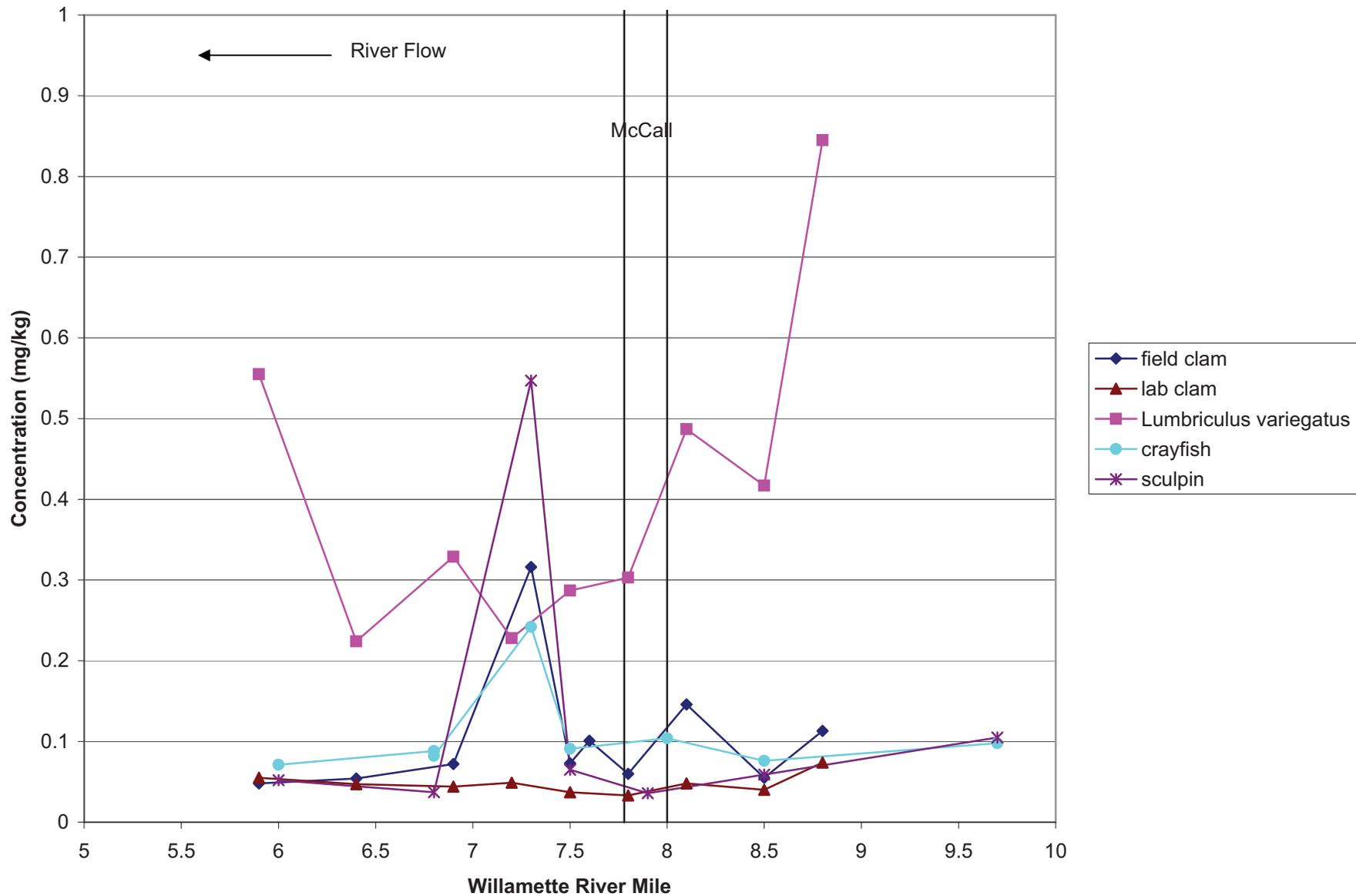
Arsenic



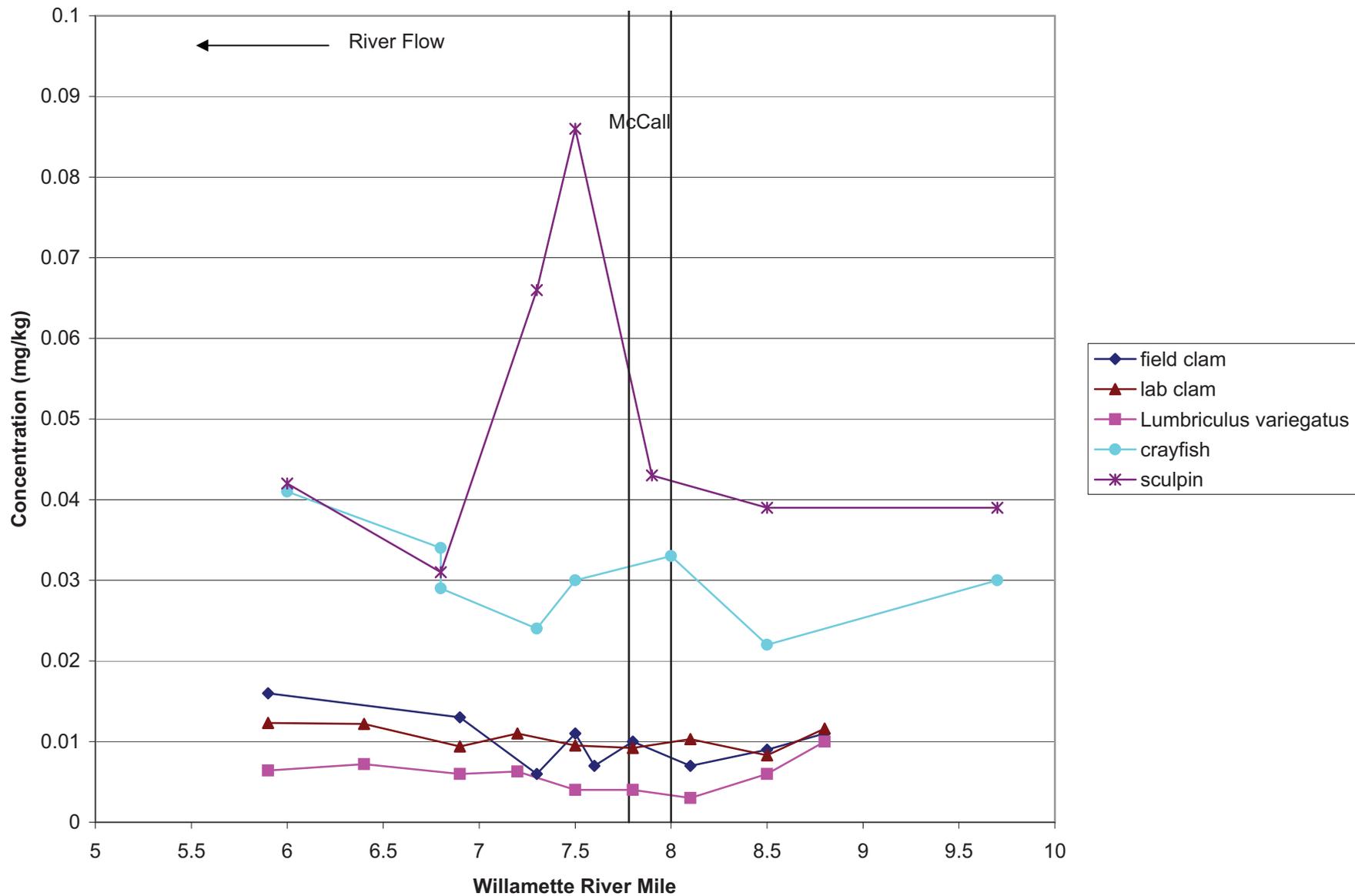
Copper



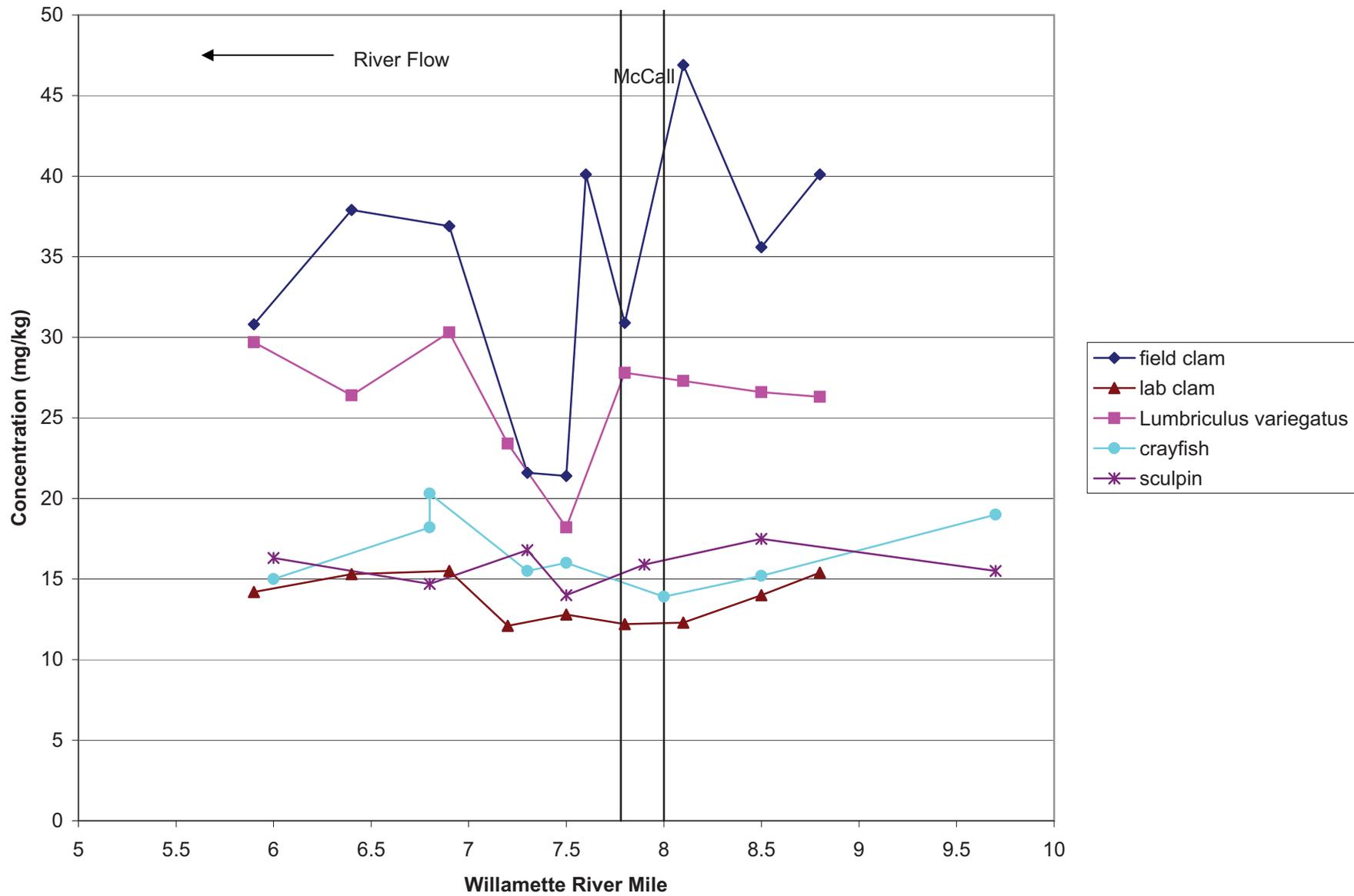
Lead



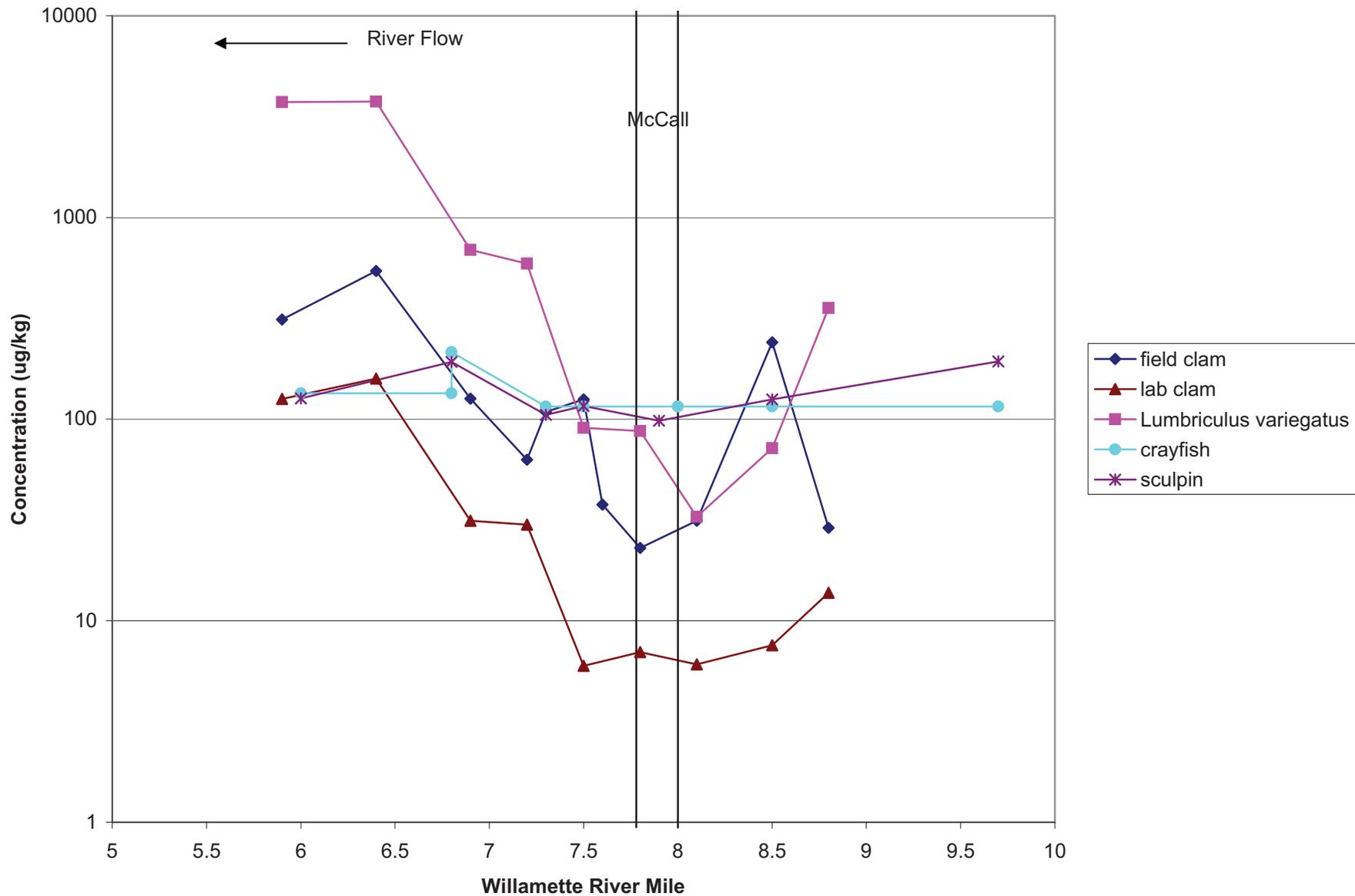
Mercury



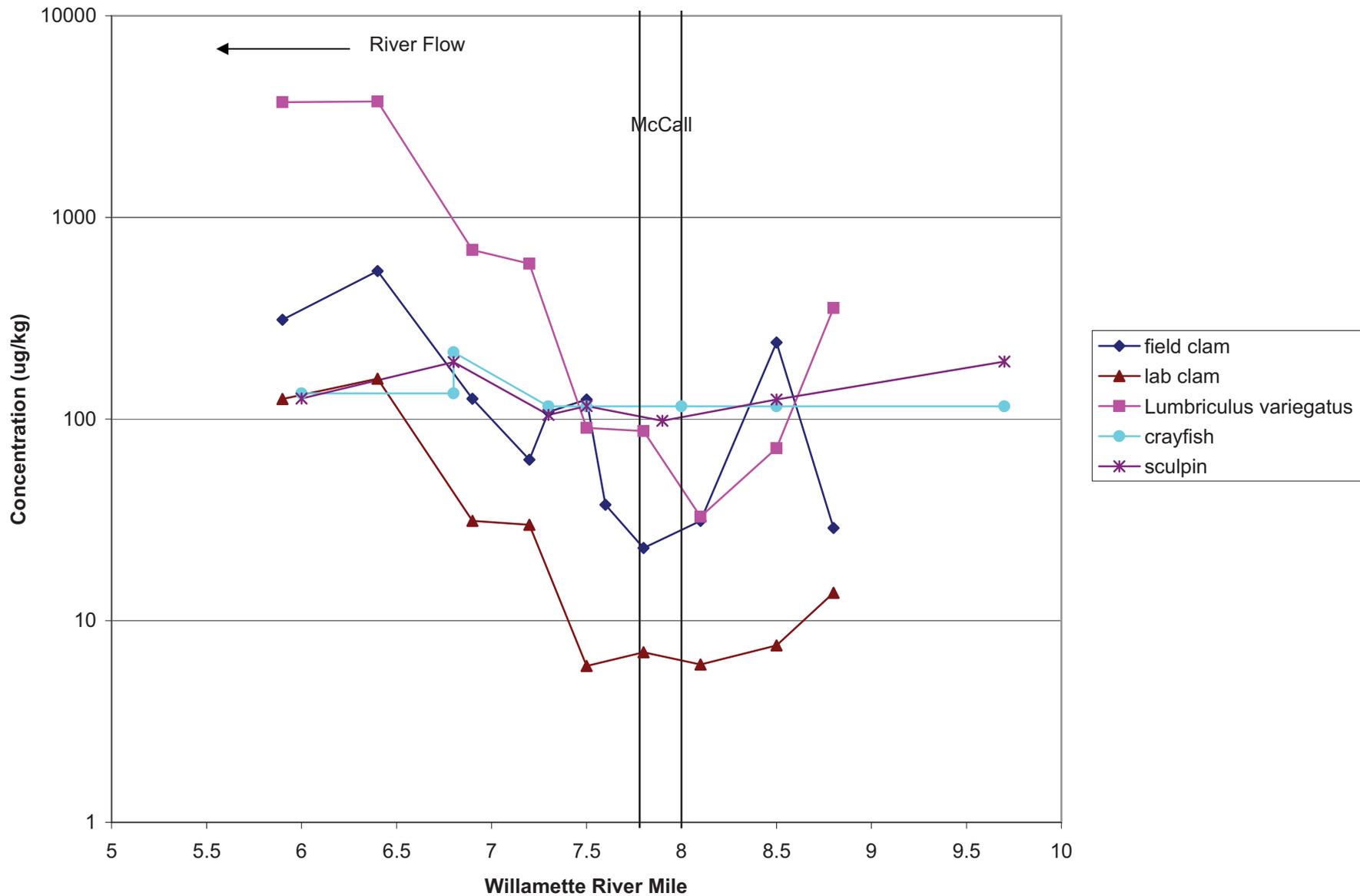
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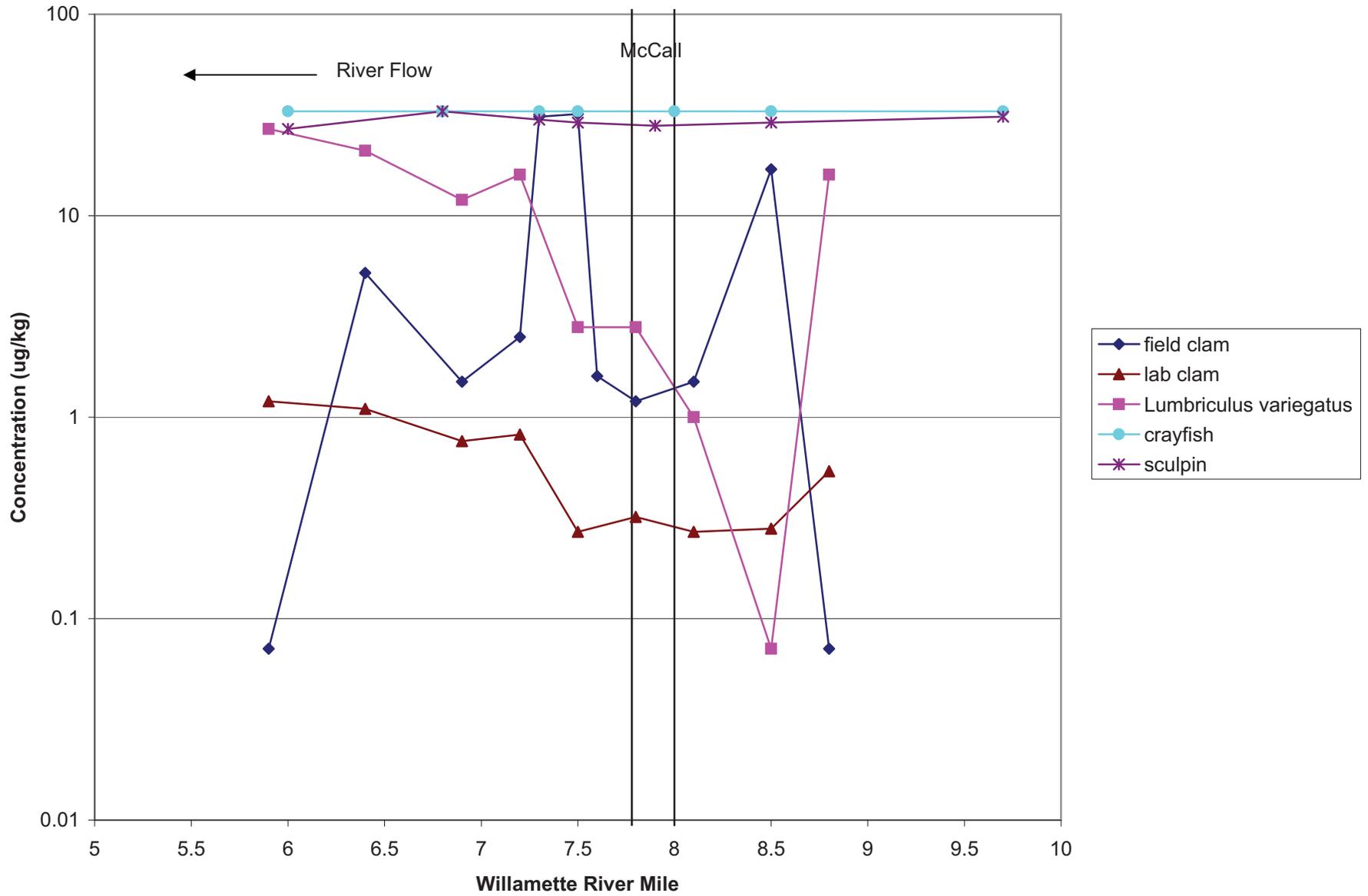
Total LPAHs



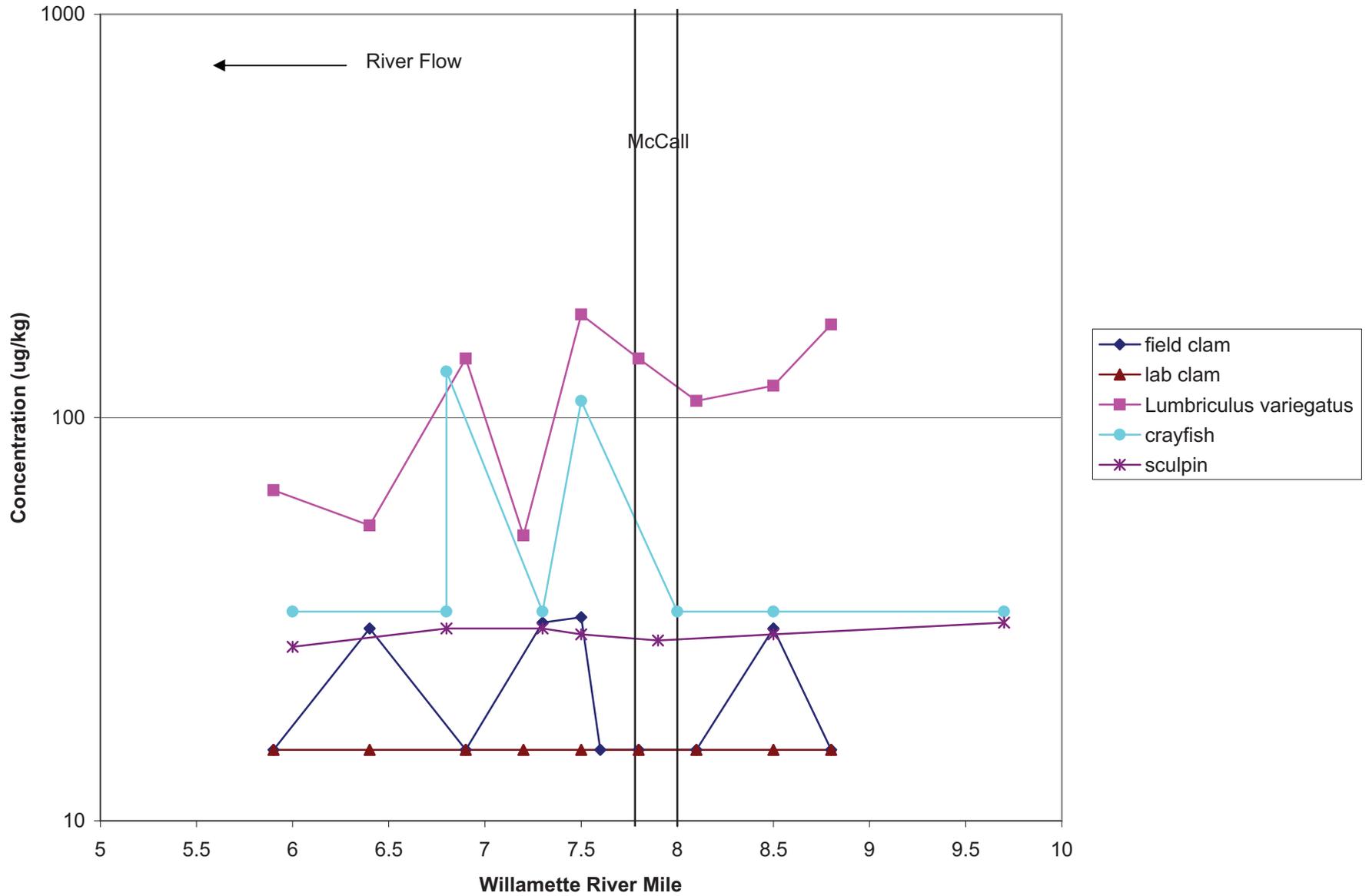
Total HPAHs



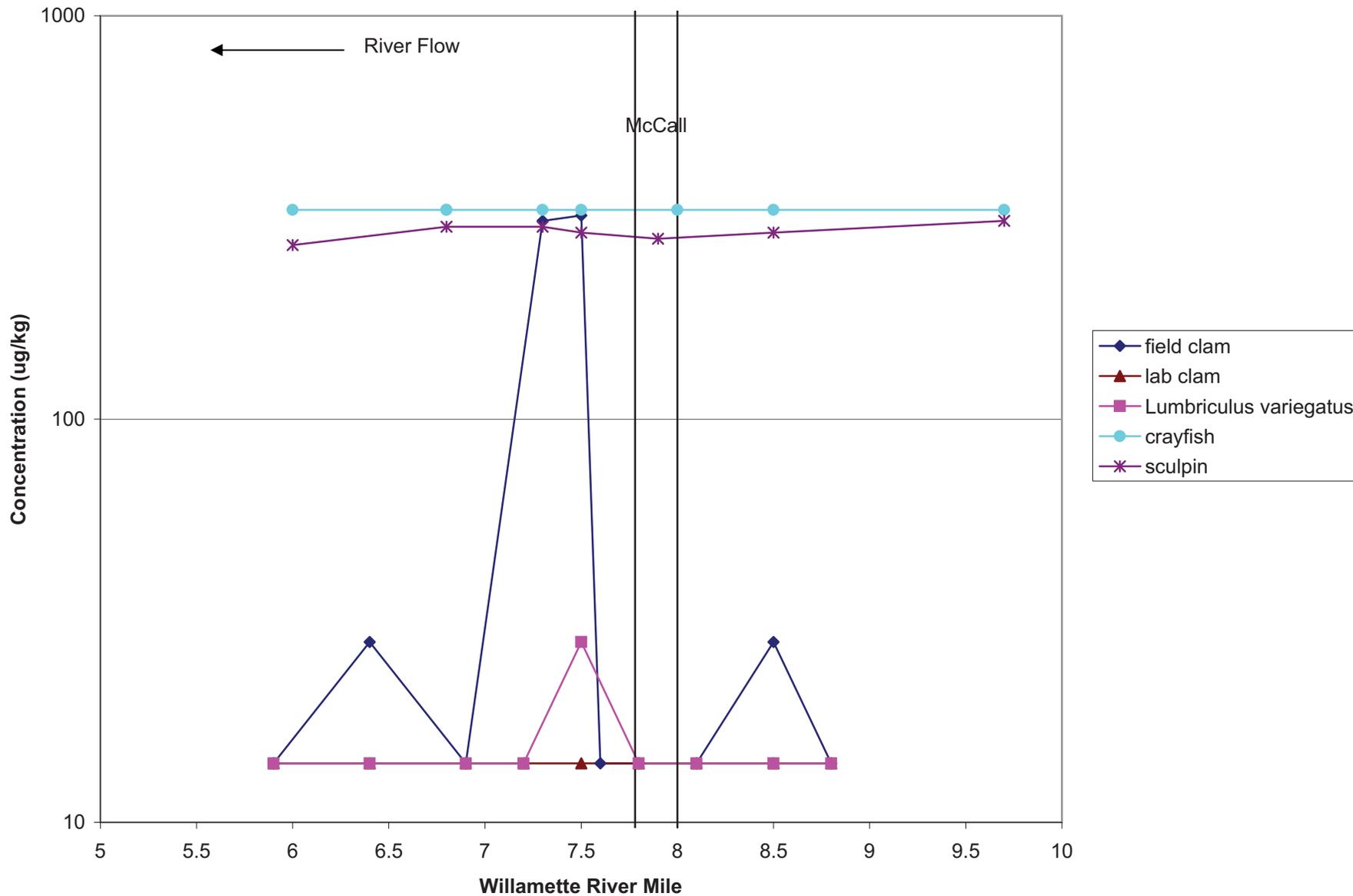
Dibenzofuran



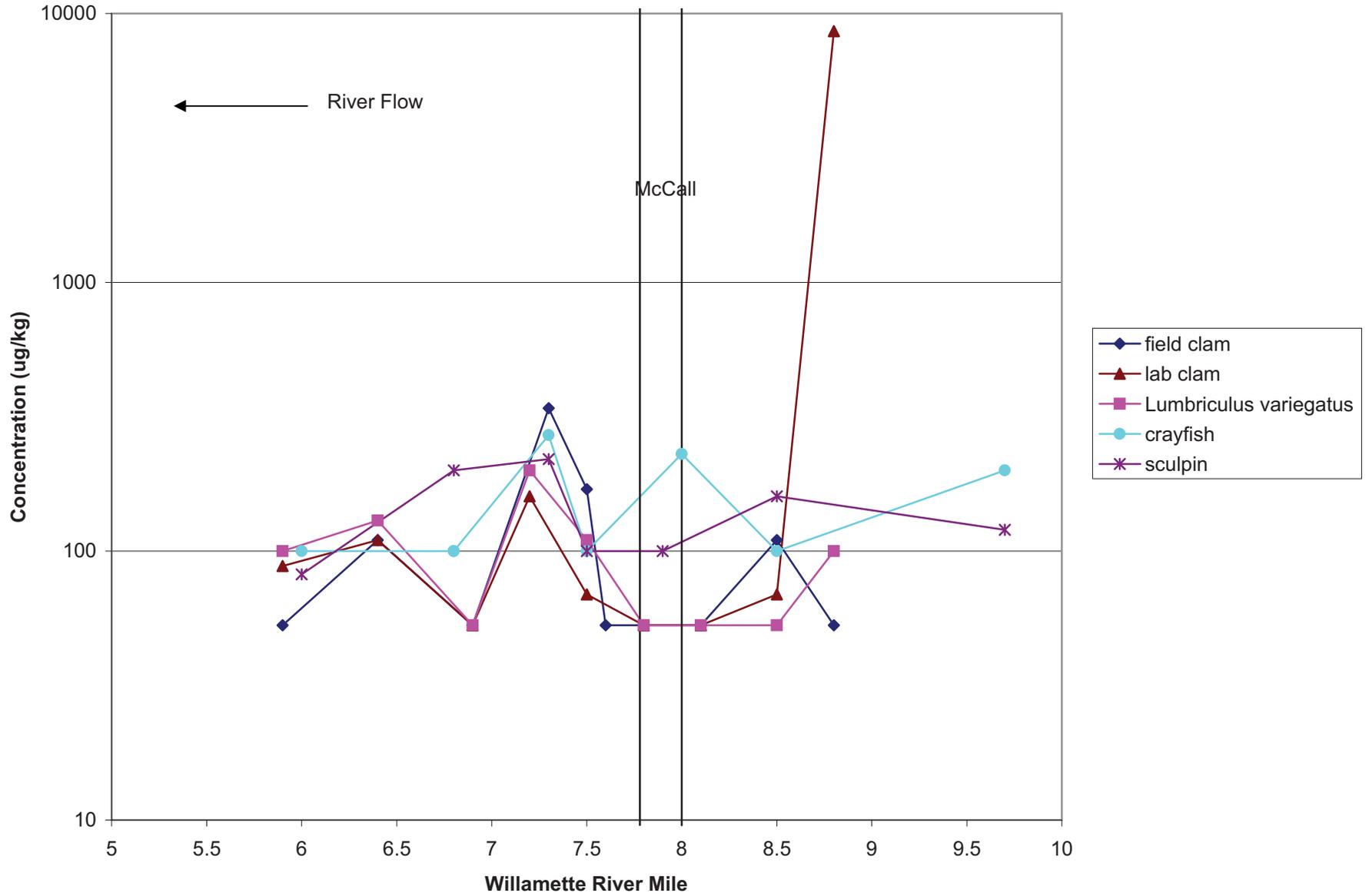
4-Methylphenol



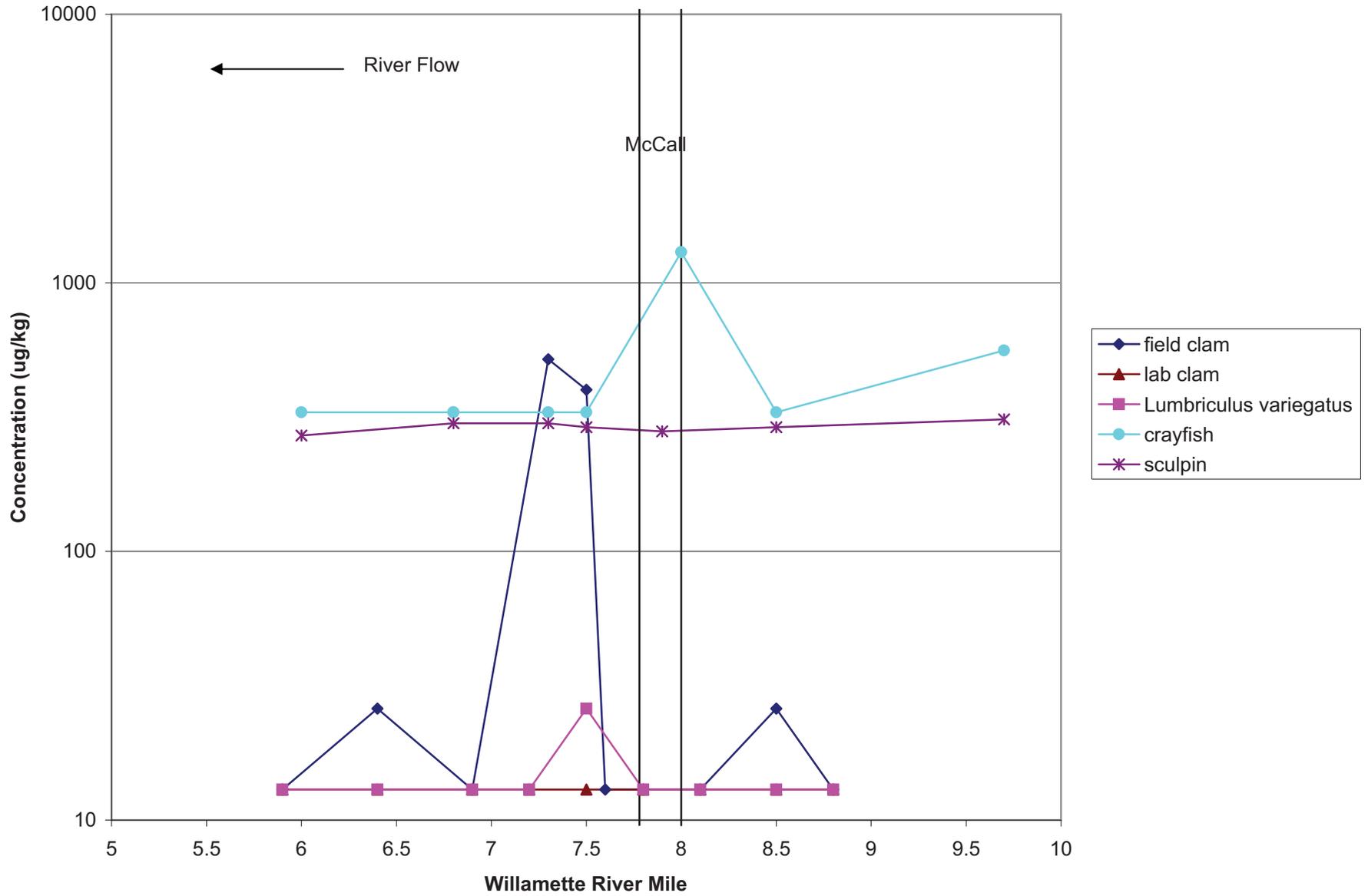
Butylbenzyl phthalate



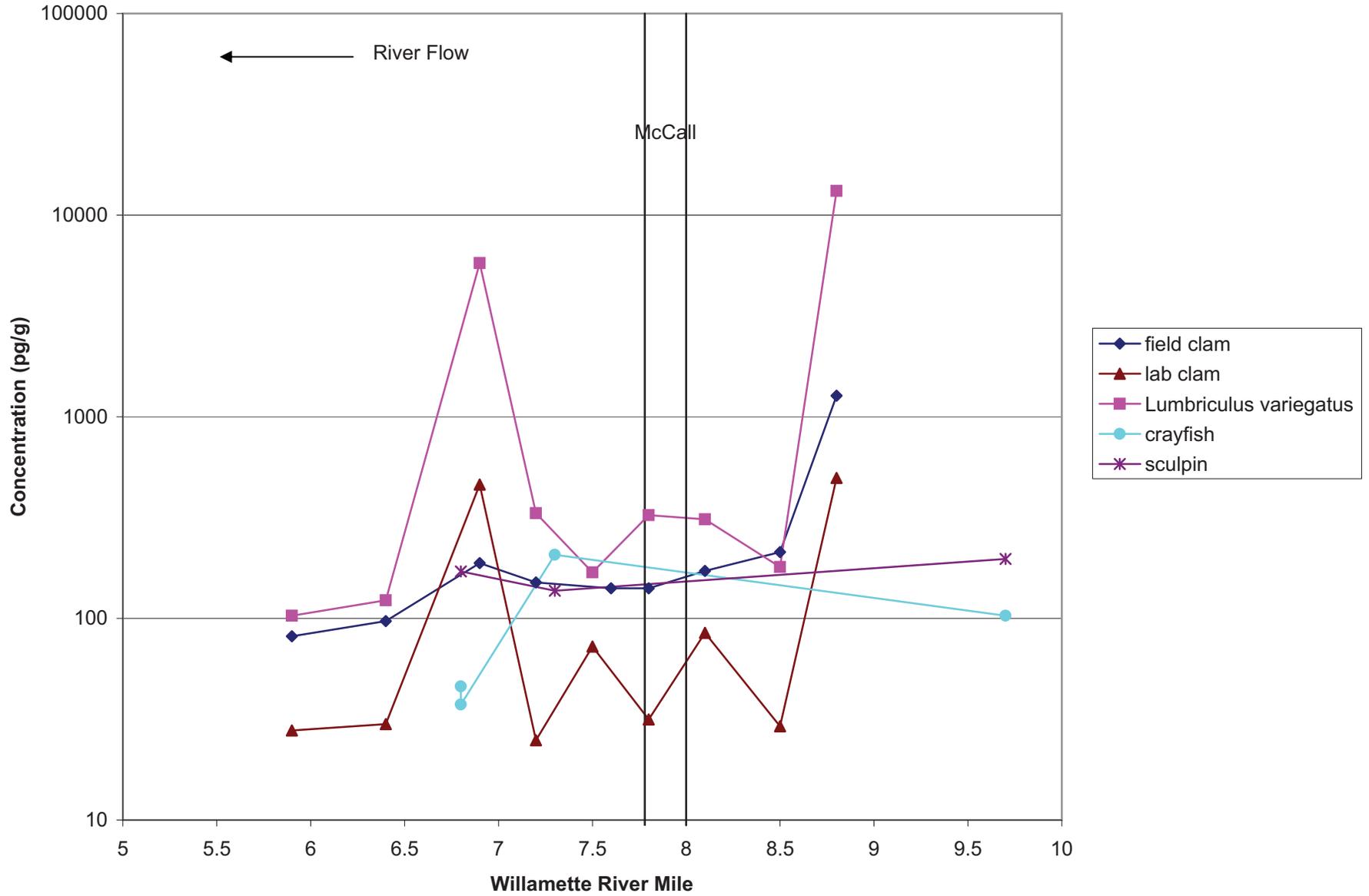
Bis(2-ethylhexyl) phthalate



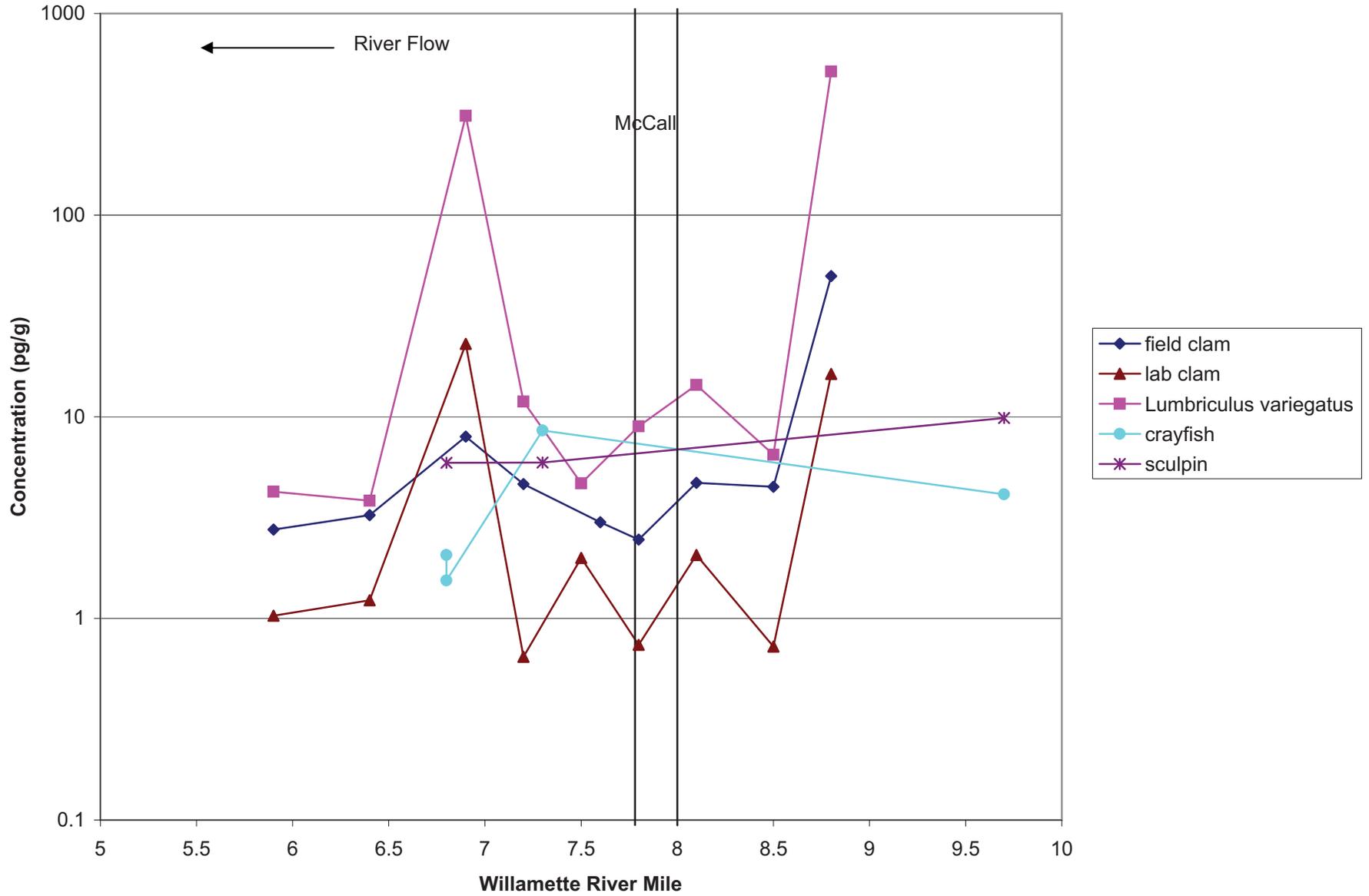
Di-n-octyl phthalates



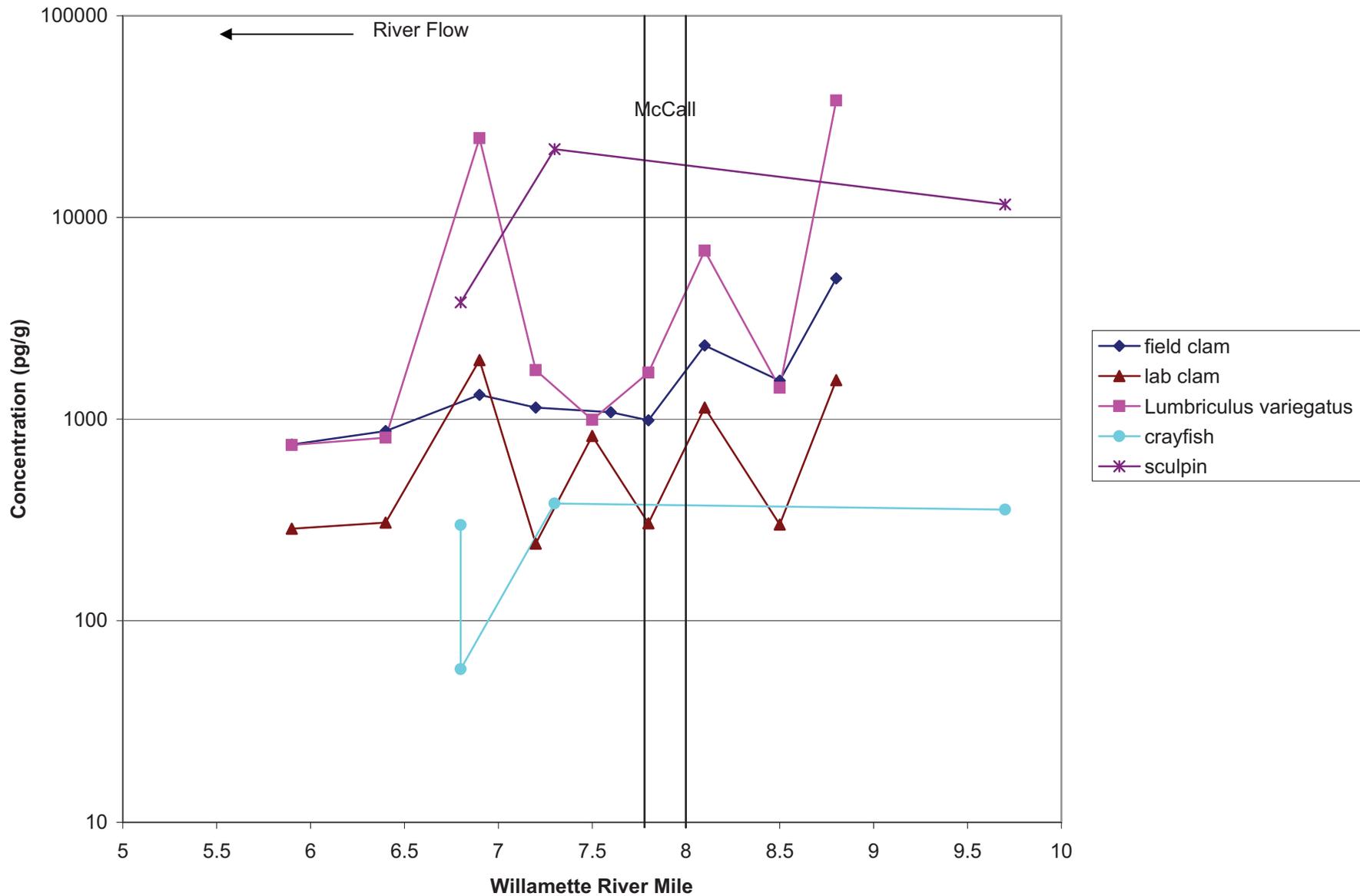
PCB 77



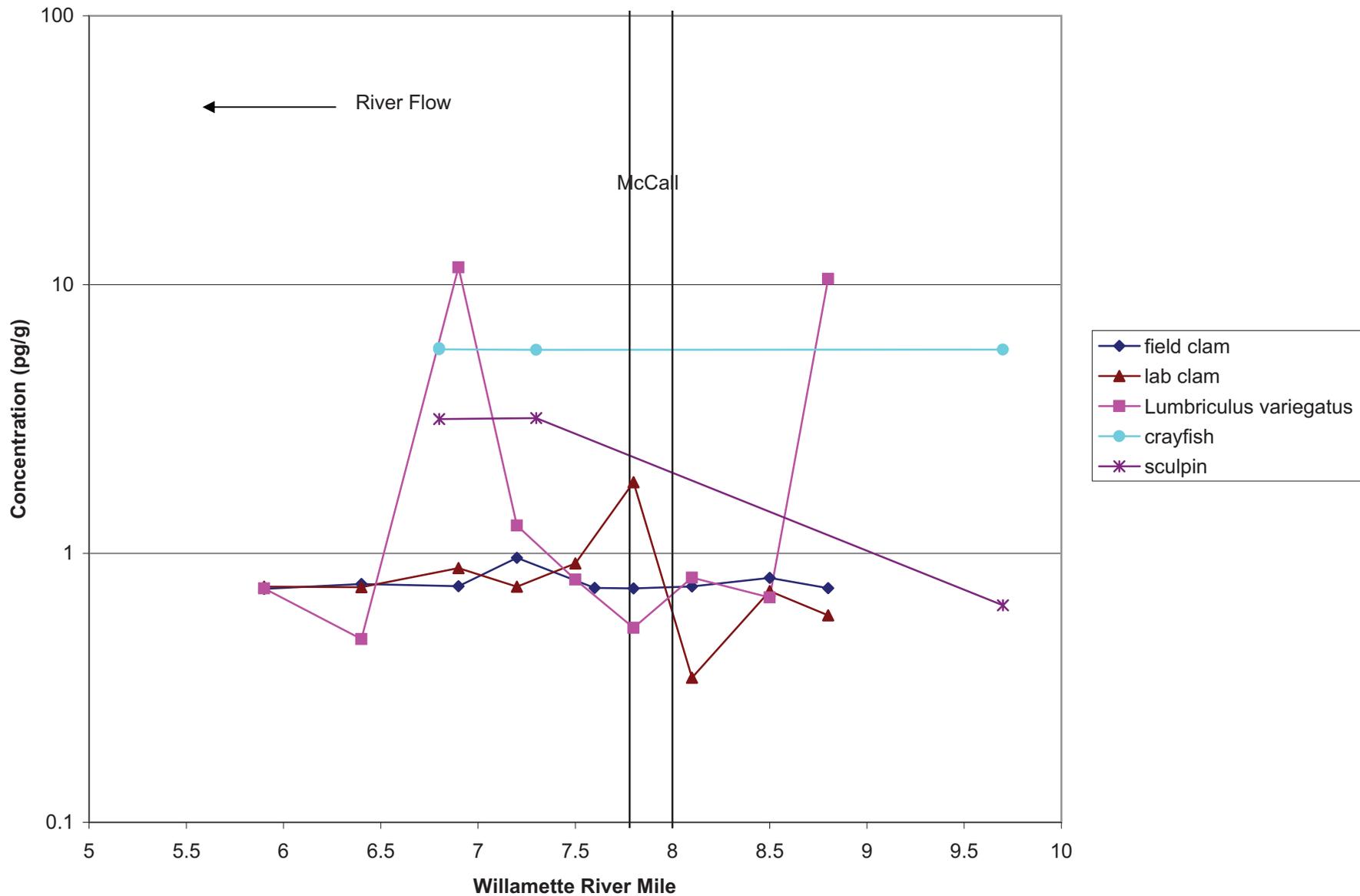
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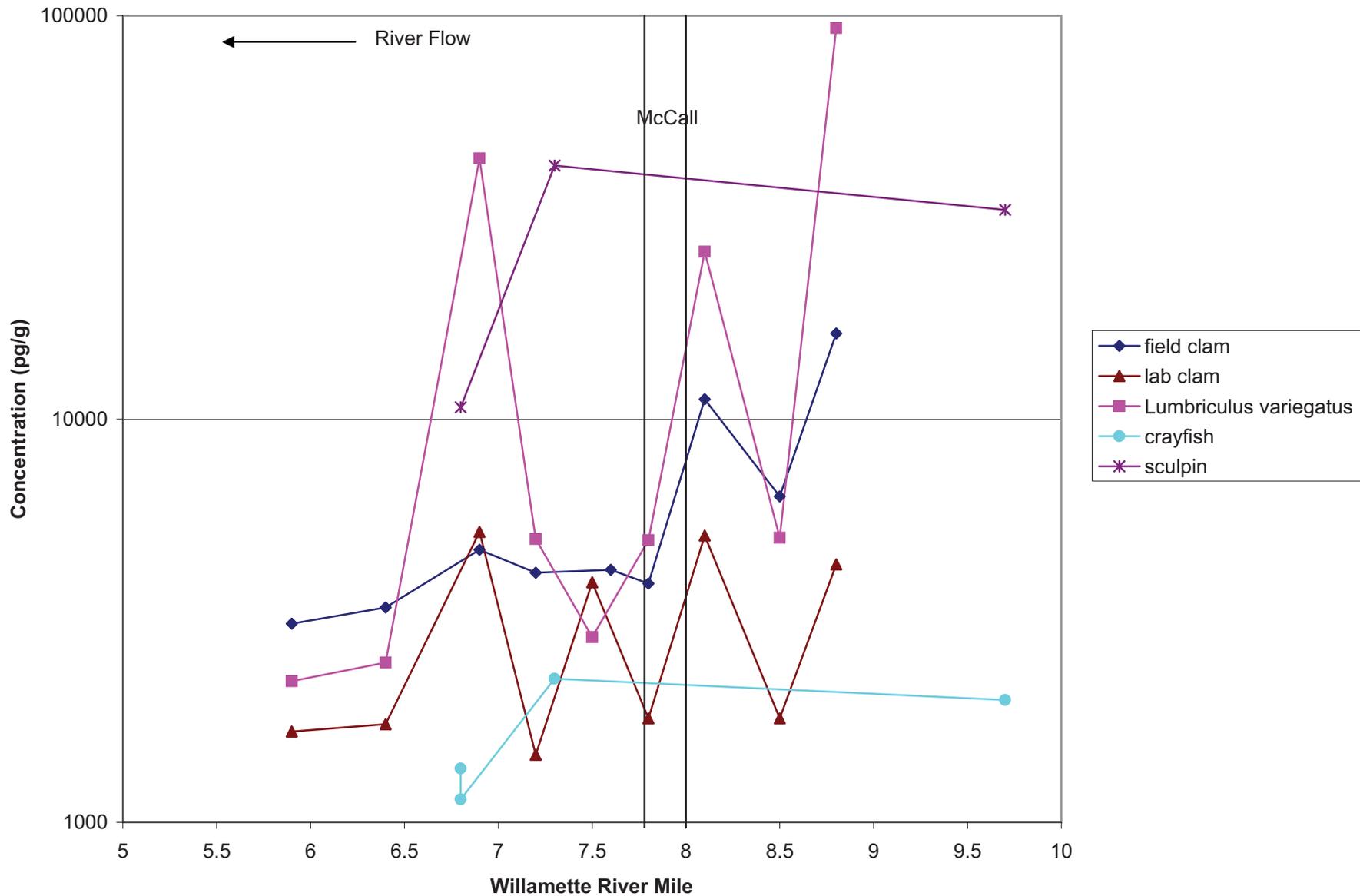
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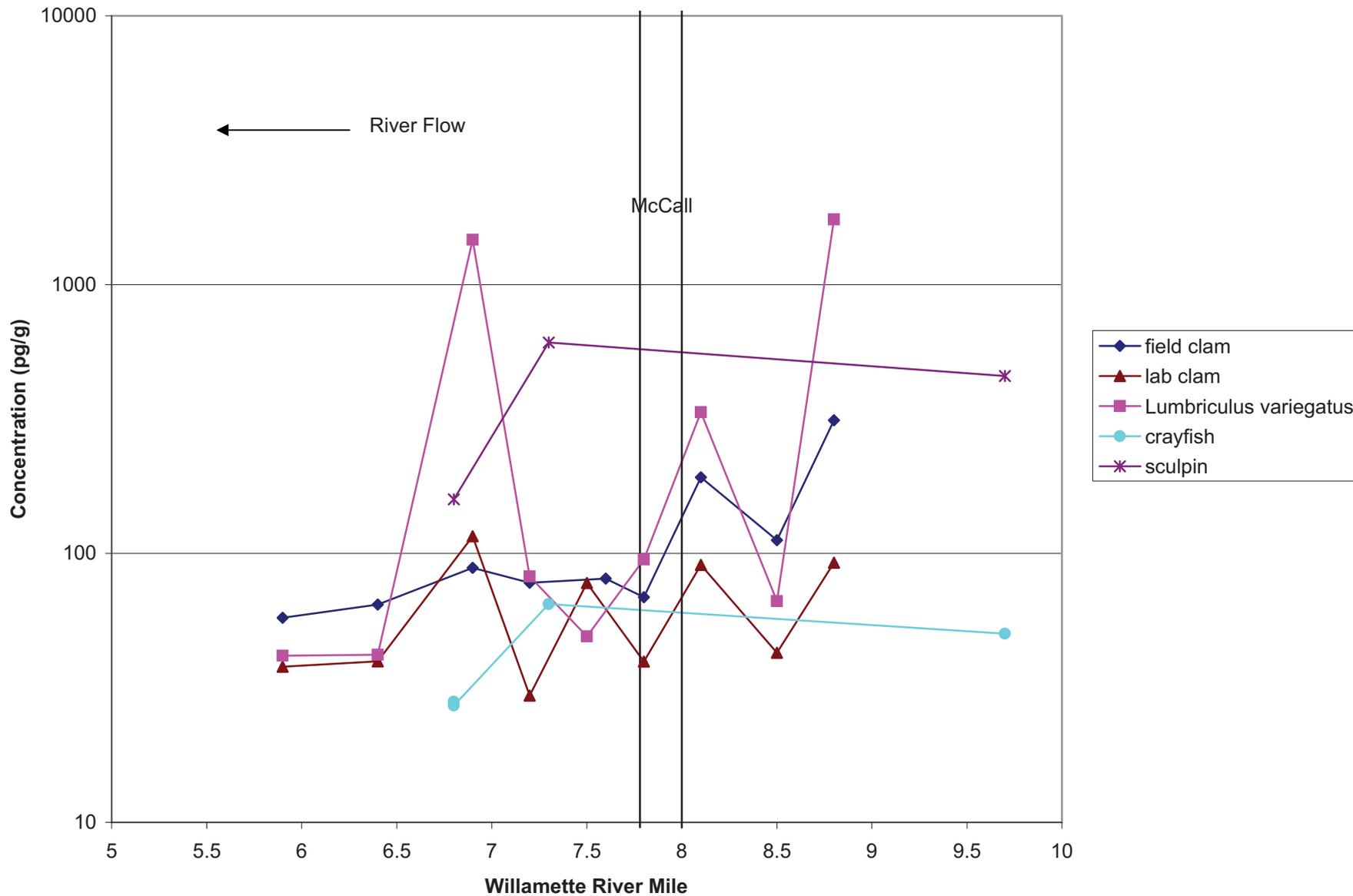
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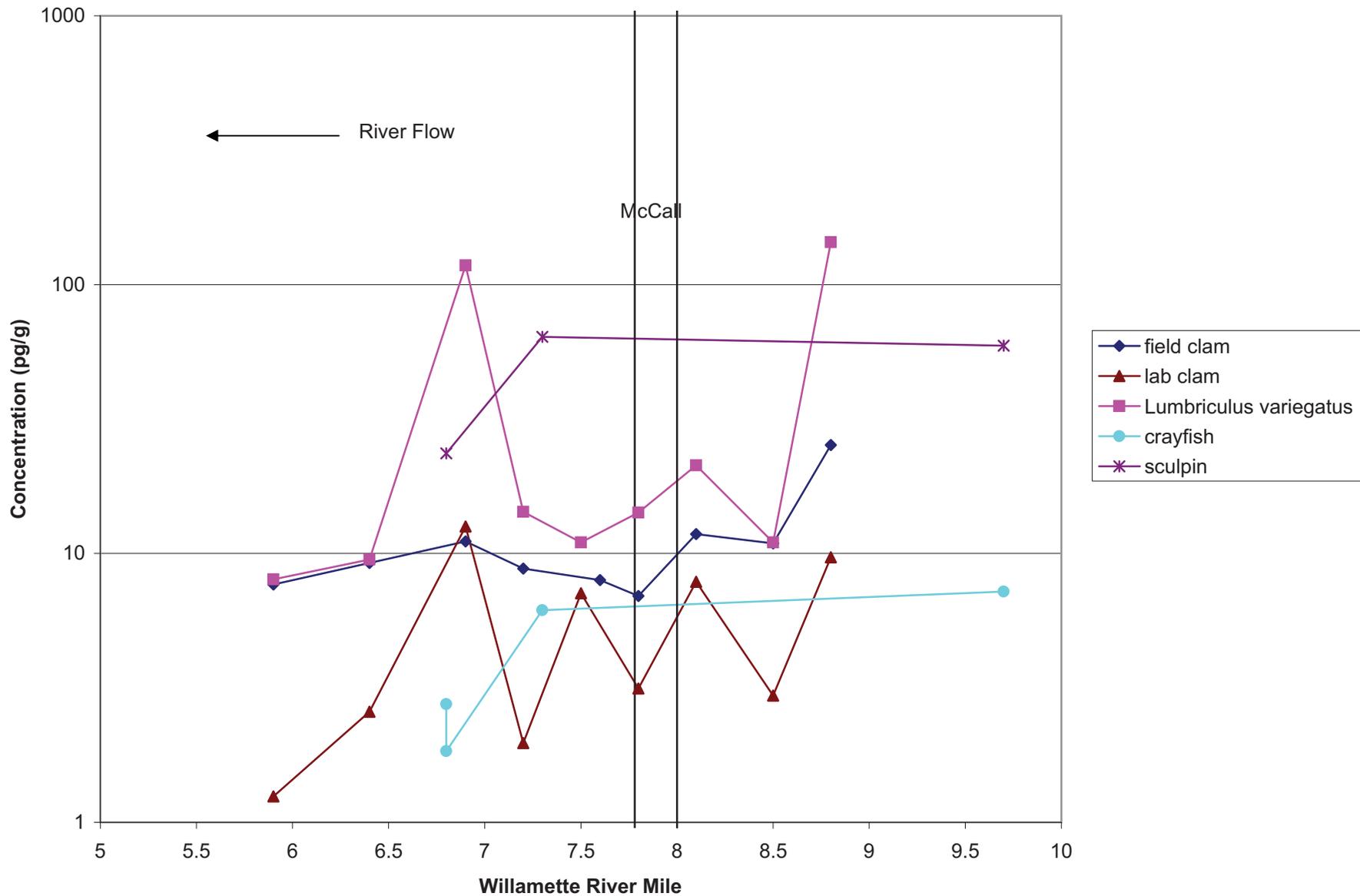
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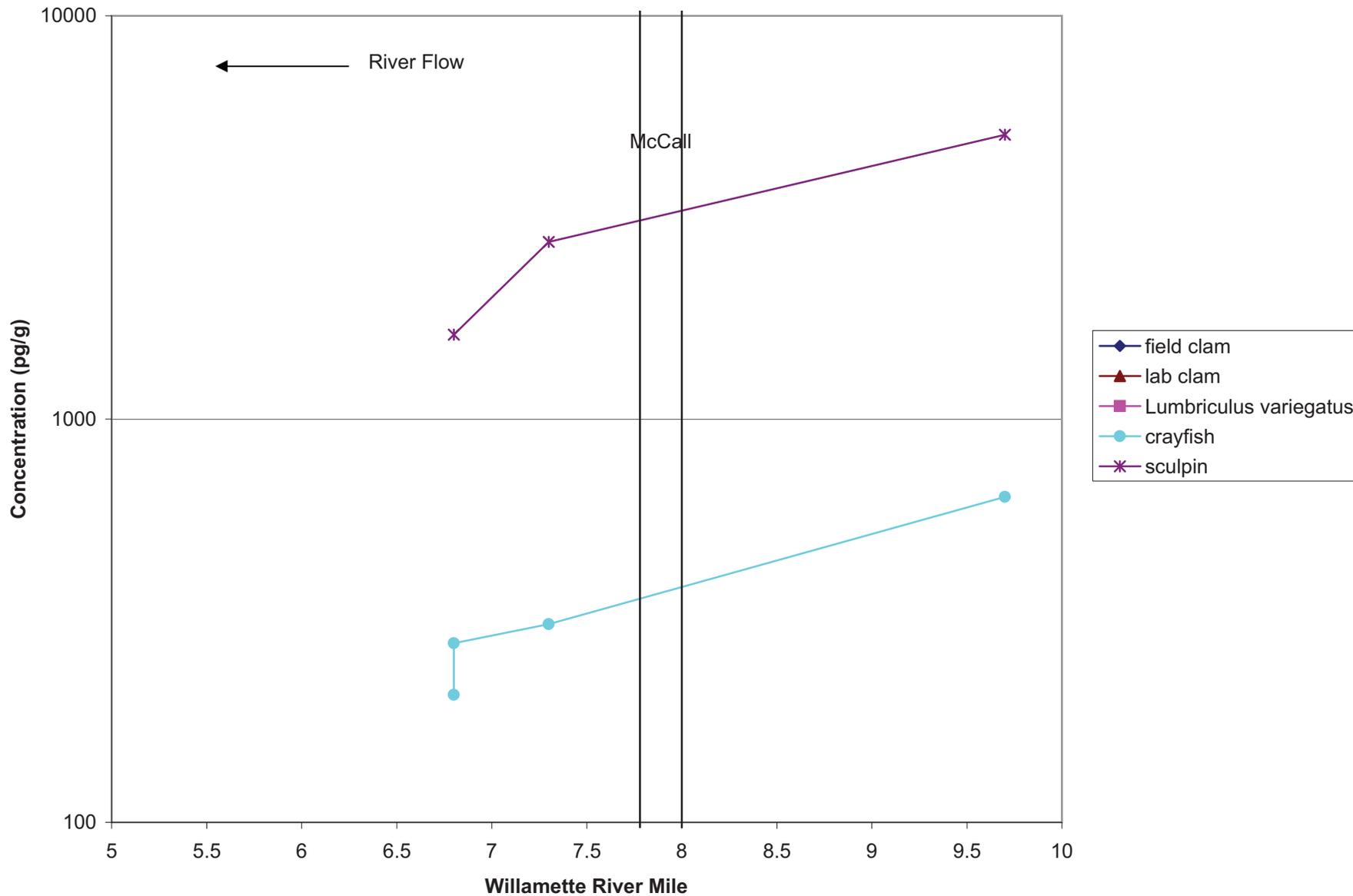
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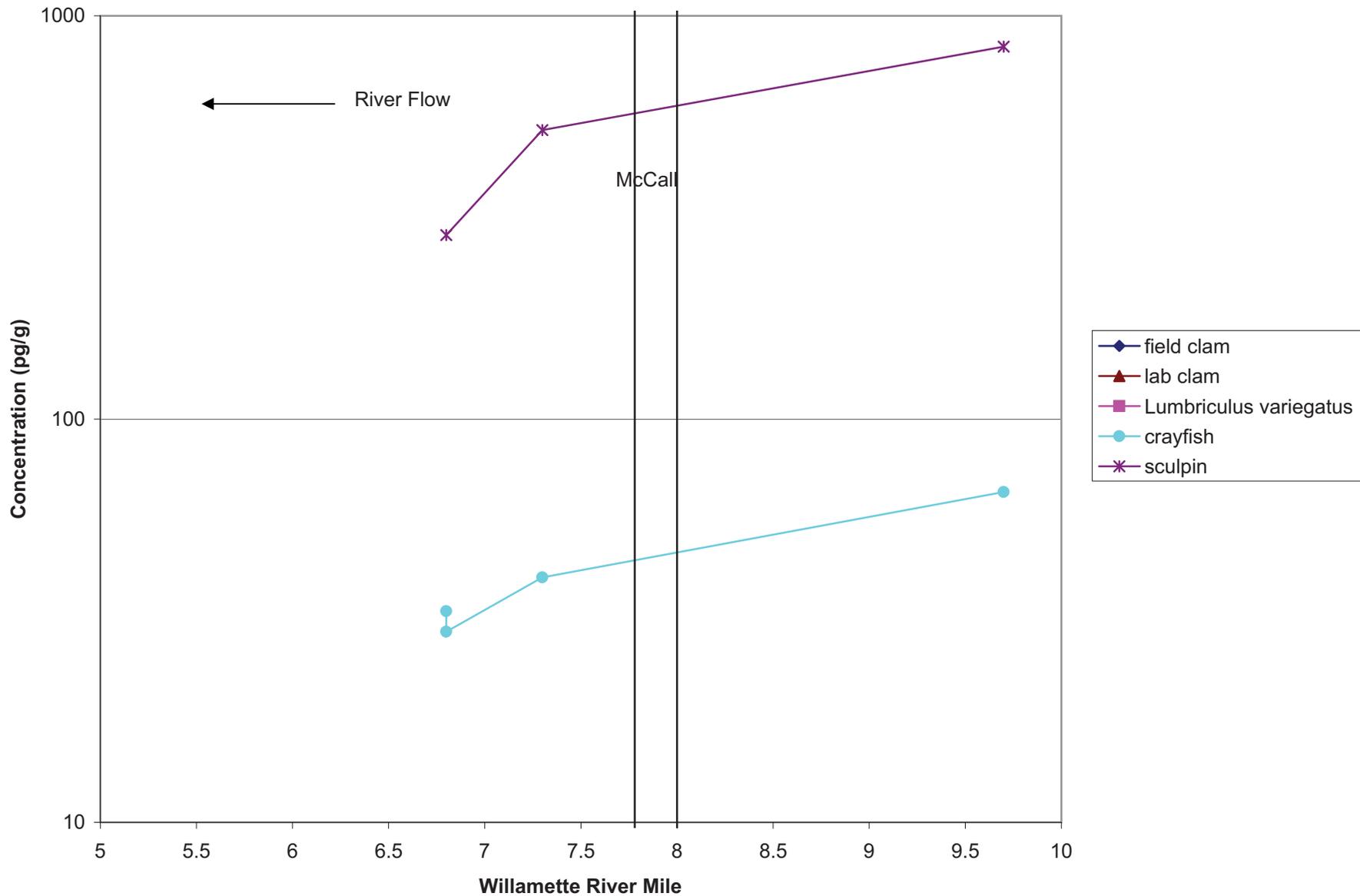
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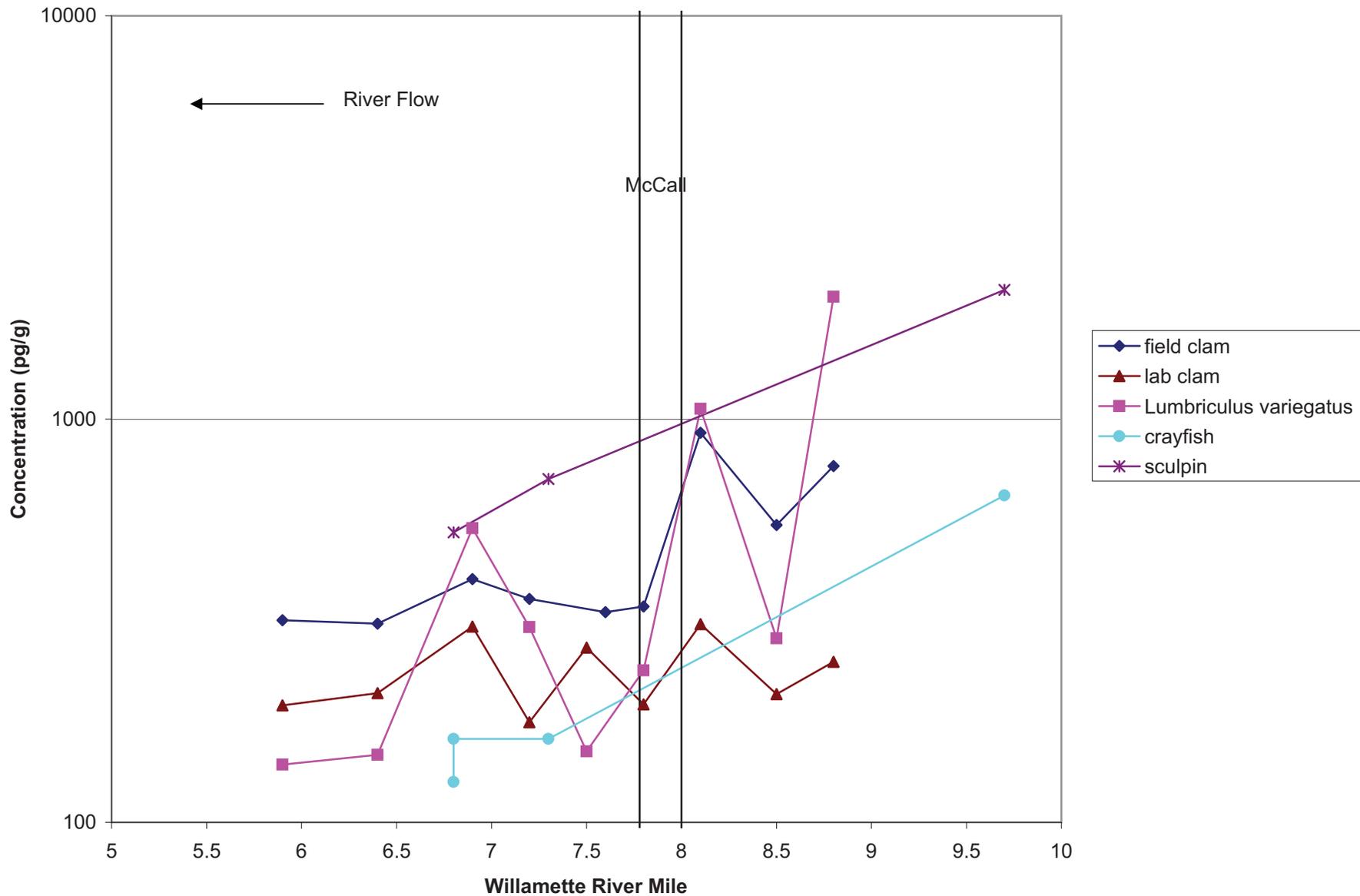
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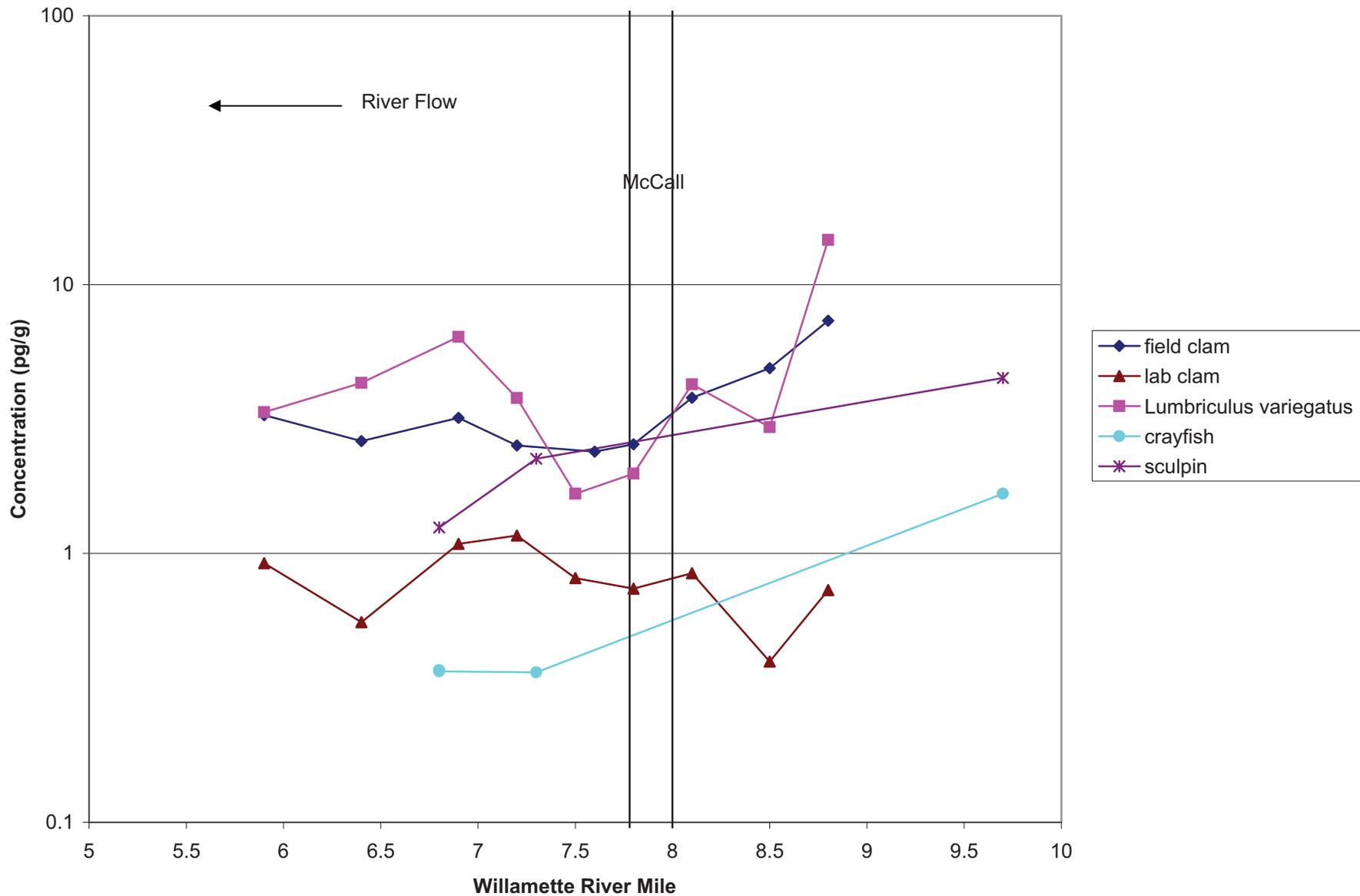
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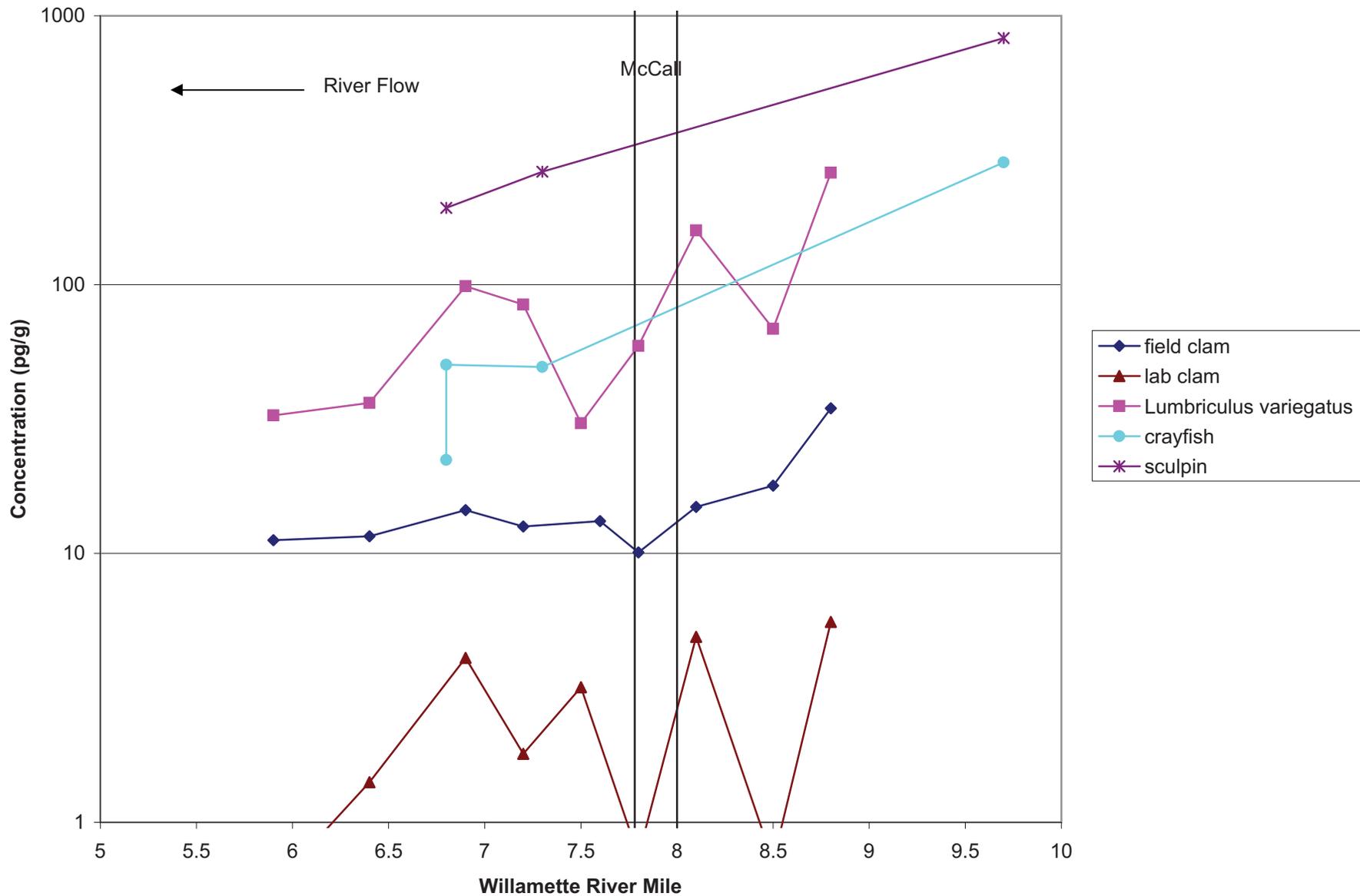
PCB 167



PCB 169

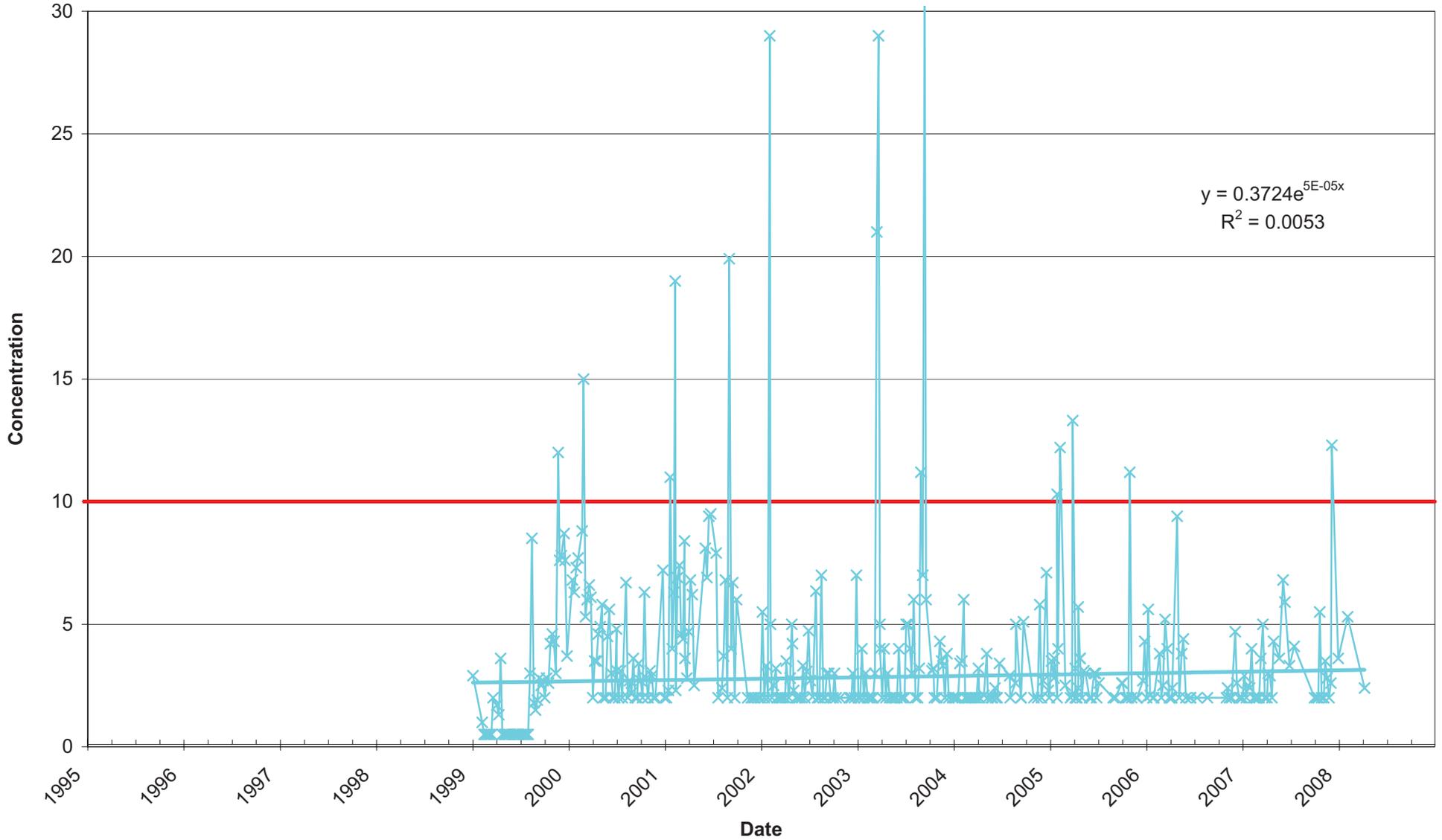


PCB 189

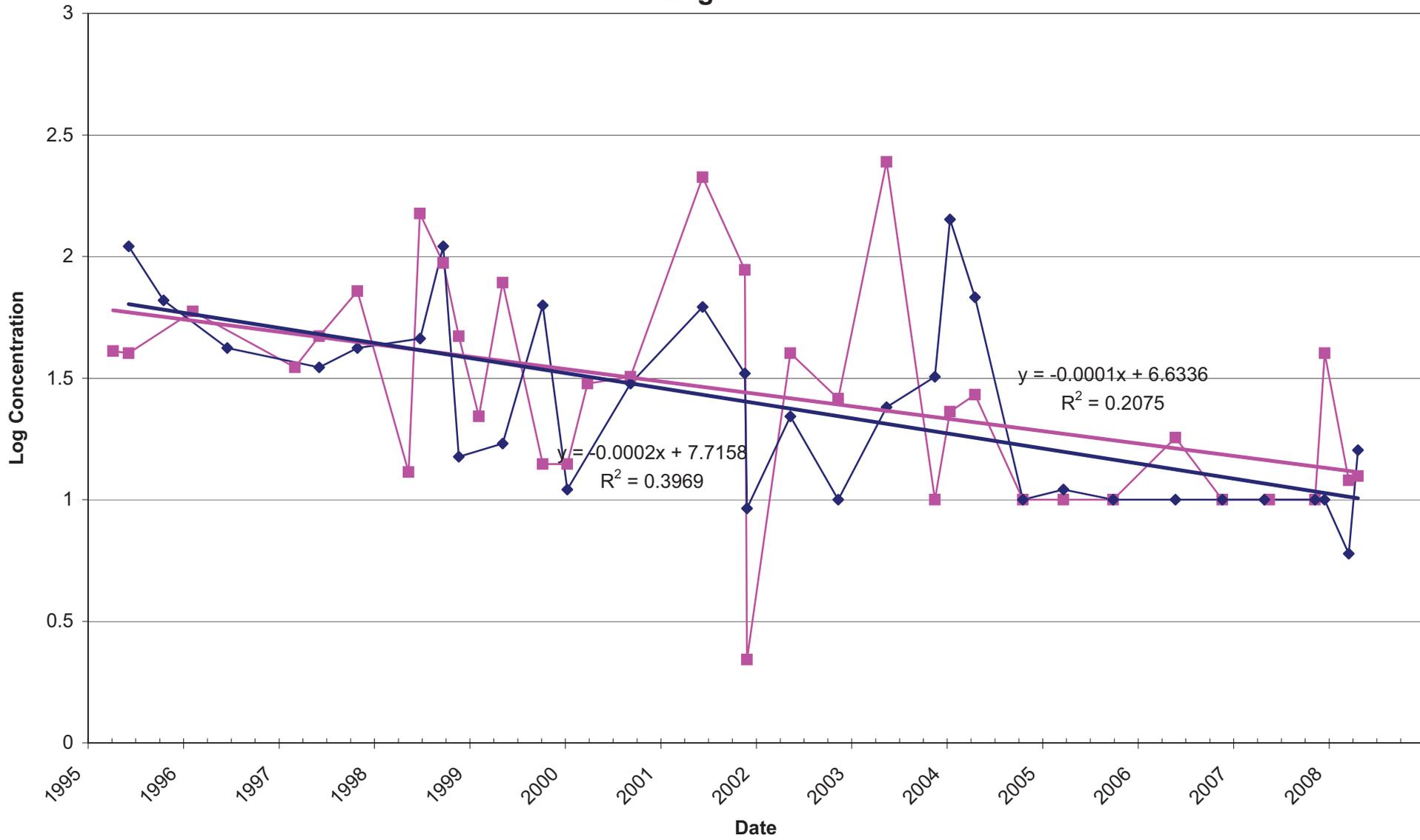


APPENDIX C
REGRESSION ANALYSIS OF NPDES MONITORING DATA

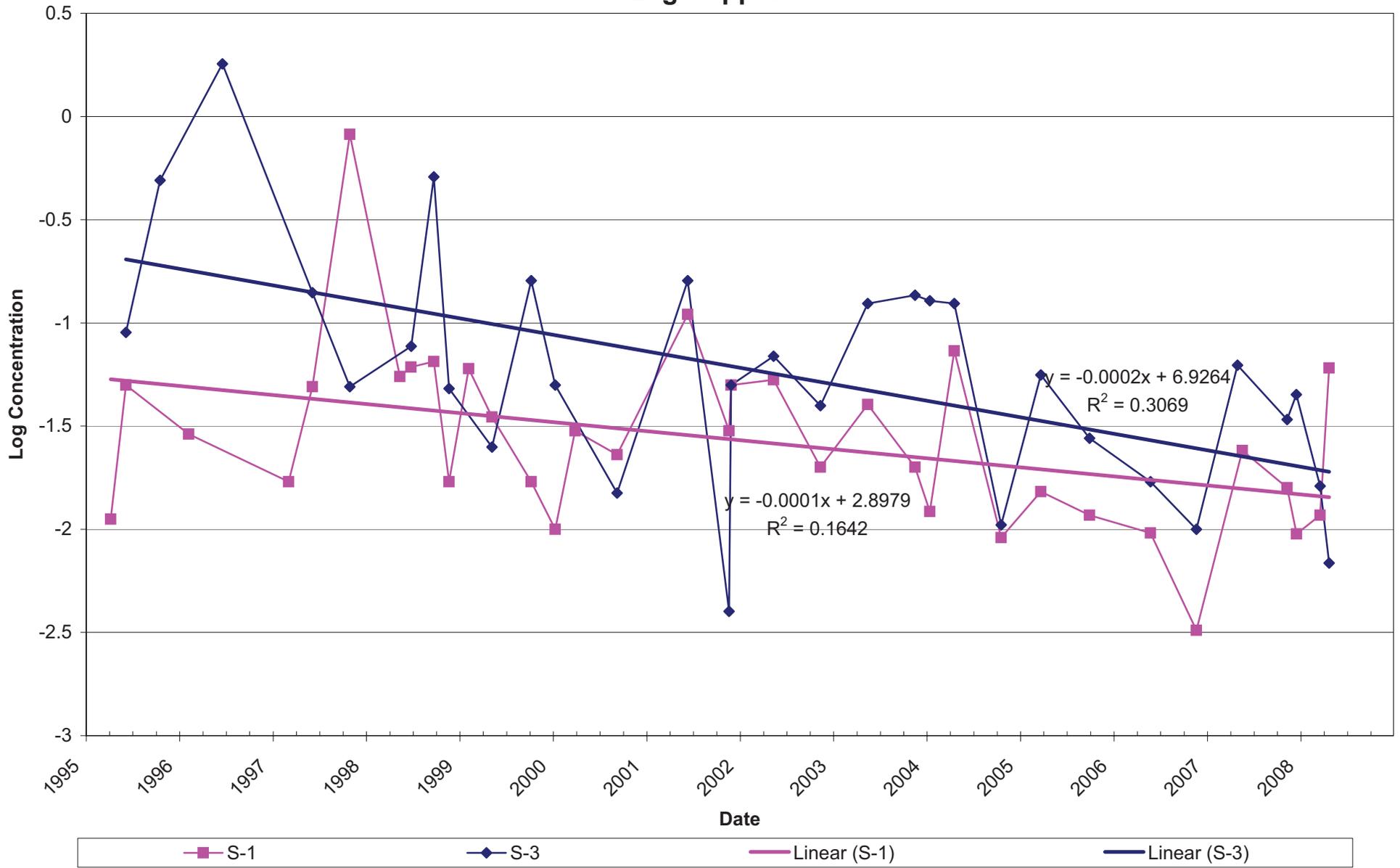
**McCall Oil and Chemical NPDES
Stormwater Data
Oil and Grease**



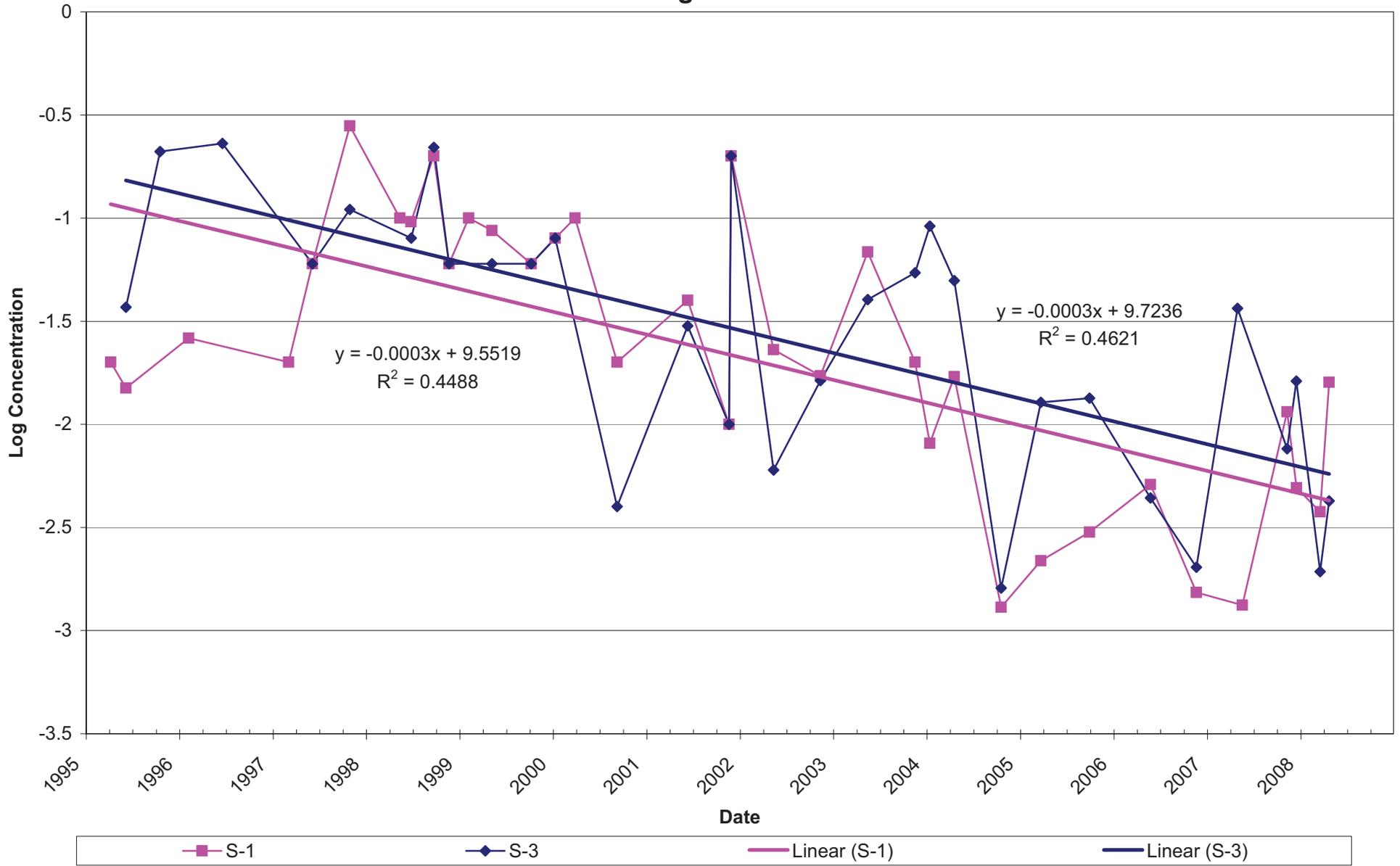
Brenntag NPDES Stormwater Data Log TSS



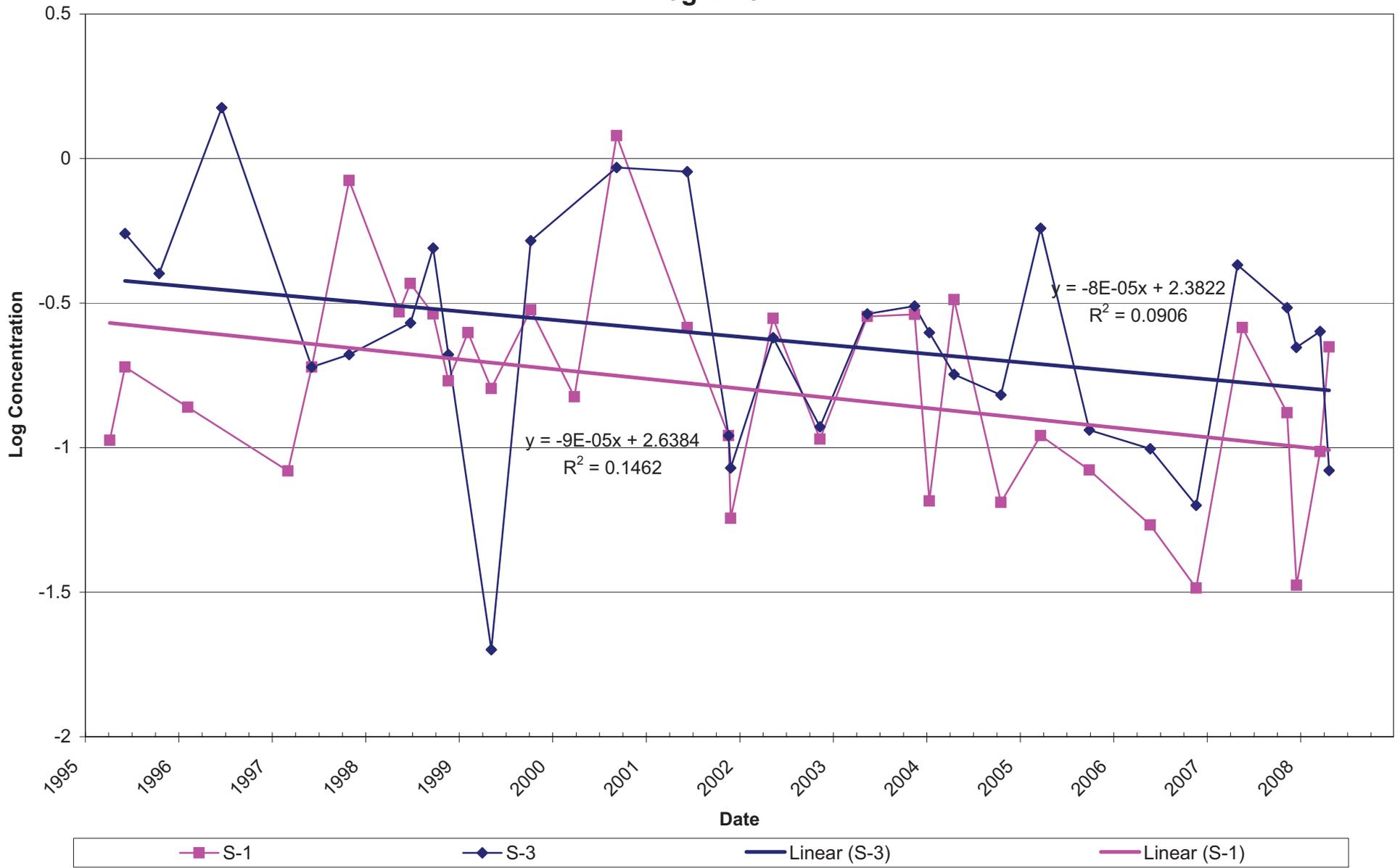
Brenntag NPDES Stormwater Data Log Copper



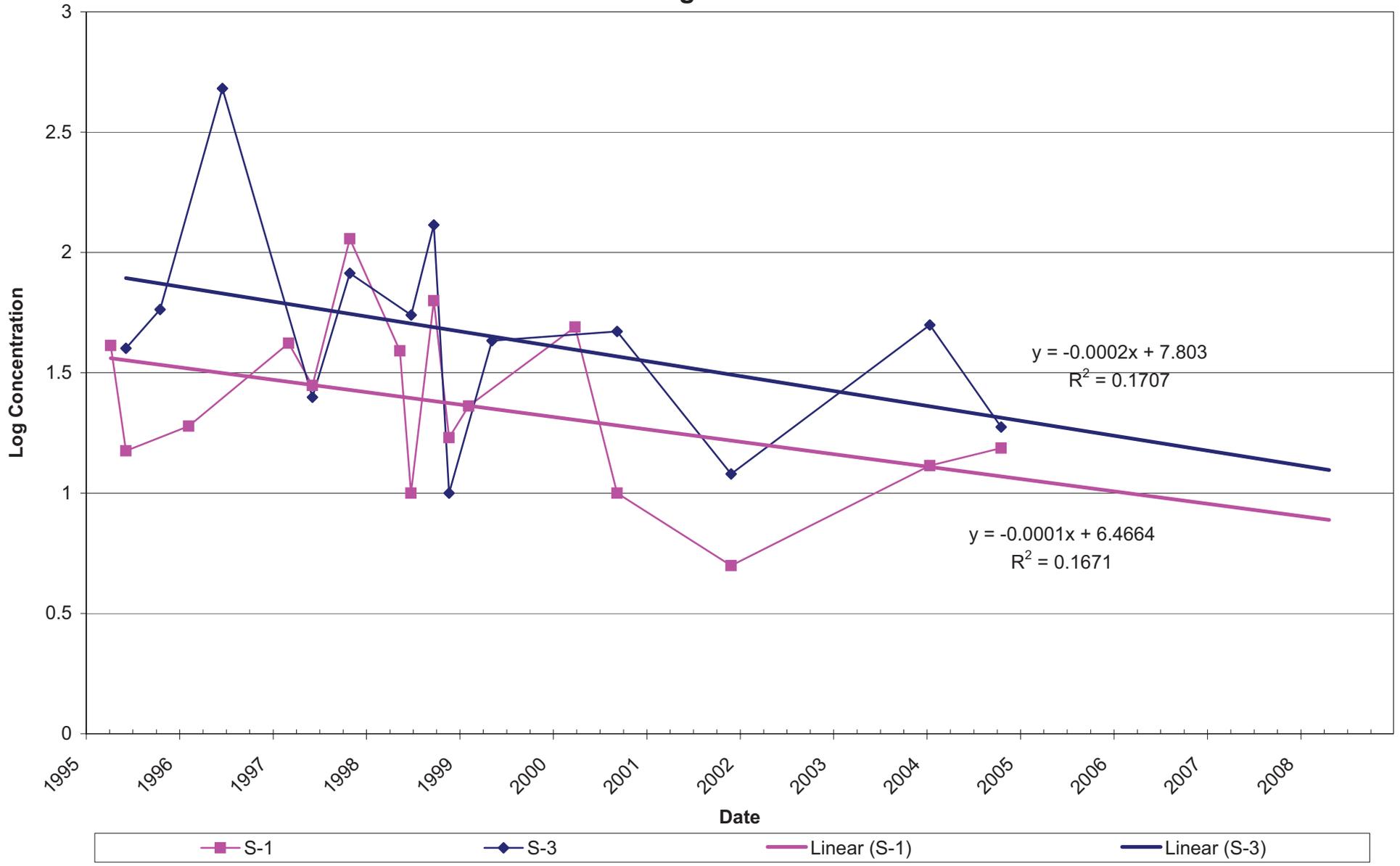
Brenntag NPDES Stormwater Data Log Lead



Brenntag NPDES Stormwater Data Log Zinc



Brenntag NPDES Stormwater Data Log COD





6650 SW Redwood Lane
Suite 333
Portland, Oregon 97224
Phone 503.670.1108
Fax 503.670.1128

July 23, 2010

Mr. Jim Orr, R.G.
Oregon Department of Environmental Quality
2020 SW 4th Avenue, Suite 400
Portland, Oregon 97201-4987

Re: Stormwater and Catch Basin Sediment Sampling Results, McCall Oil and Chemical Corporation, Portland, Oregon, ECSI #134

Project Number: 030162-01

Dear Jim:

This letter presents the results of catch basin sediment and storm water sampling conducted at McCall Oil and Chemical (MOCC) in Portland, Oregon (Figure 1). A Stormwater and Catch Basin Sediment Sampling Plan was submitted to DEQ on May 4, 2010. In a letter dated May 10, 2010, DEQ commented on the Sampling Plan and approved the collection of sediment and stormwater samples before submittal of the Revised Stormwater and Catch Basin Sediment Sampling Plan. The Revised Stormwater and Catch Basin Sediment Sampling Plan was submitted to DEQ on May 24, 2010.

Catch basin sediment samples were collected on May 21, 2010. The locations for the catch basins sampled are shown in Figure 2. Insufficient volumes of sediment were present below the filters at locations S-1 and S-2 so samples were collected from material retained on the filters. At location S-4 (the oil-water separator), insufficient volumes of sediment were present in the chambers, so, as requested by DEQ, a composite sample was collected from four catch basins representing different sections of the S-4 drainage basin. The sub-sample locations for the S-4 composite catch basin sediment sample are shown on Figure 2.

Analytical testing results for the catch basin sediment samples are shown in Table 1. Copies

of field sampling data sheets are in Attachment A. Laboratory reports and chain of custody forms are included in Attachment B.

Stormwater samples were collected during May 21, 2010 and June 3, 2010 qualifying rainfall events. The May 21, 2010 rainfall event qualified as a first flush event. Hydrographs showing rainfall data for 2 local rain gages (Yeon Gage #121 and Swan Island Rain Gage #204) and associated sample times are in Attachment C. Analytical testing results for the stormwater samples are shown in Table 1. The site-wide means shown on Table 1 have not been recalculated to include the new data.

Laboratory data was subjected to a standard data validation review. The data were judged to be acceptable for their intended use as qualified. Please refer to the data validation review in Attachment D.

Stormwater and catch basin sediment analytical results are also presented in a screening template provided by DEQ. A printout of the screening template is in Attachment E. An electronic copy of the template in Appendix E will also be provided to DEQ in Excel format via email.

If you have any questions, please let us know.

Sincerely,



John J. Renda, R.G.
Anchor QEA, LLC



John E. Edwards, C.E.G, R.G.
Anchor QEA, LLC

Cc: Ted McCall

Attachments

Table 1	Risk Screening Evaluation of Bank Soil and Catch Basin Sediment
Table 2	Risk Screening Evaluation of Site Stormwater
Figure 1	Vicinity Map

Figure 2	Sample Location Map
Attachment A	Field Sampling Data Sheets
Attachment B	Laboratory reports and chain of custody forms
Attachment C	Stormwater Sampling Hydrographs
Attachment D	Data Validation review
Attachment E	DEQ Screening Template

TABLES

Table 1
Risk Screening Evaluation of Bank Soil and Catch Basin Sediment
McCall Oil and Chemical

	MacDonald PECs and other SQVs	ODEQ 2007 Bioaccumulation in SLVs	Bank Surface Soils						Stormwater Catch Basin Sediment												
			GP-14 0-2	GP-15 0-2	GP-16 0-2	GP-17 0-2	GP-18 0-2	GP-19 0-2	Mean Site-Wide*	S-1 Sediment	S-1 Sediment	S-1 Sediment	S-2 Sediment	S-2 Sediment	S-2 Sediment	S-3 Sediment	S-3 Sediment	S-3 Sediment	S-3 Sediment	S-3 Sediment	S-4C Sediment
			Soil	Soil	Soil	Soil	Soil	Soil													
			12/13/00	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00		12/15/00	11/12/07	05/21/10	12/15/00	11/12/07	05/21/10	12/15/00	11/04/04	05/02/07	05/21/10	05/21/10	
Metals (mg/kg)																					
Arsenic	33	7	2.2	1.7	1.6	1.5	1.3	1.6	14	5.2	4.4	3.58	7.5	4.6	3.49	38	25.6	10	45.4	3.03	
Cadmium	4.98	1							1.8	2.0	1.8	1.05	1.42	1.11	0.976	2.86	1.9	1.6	1.67	0.987	
Chromium	111	--	13	11	11	10	9	10	106	48.9	122	65.6	63.7	95	59.9	144	189	79	154	25.1	
Copper	149	--	17	18	15	13	14	12	502	137	214	90.5	316	115	96.1	1,050	1,360	321	1280	79.9	
Lead	128	17							312	145	312	124	211	256	138	454	600	206	438	28.1	
Manganese	1,100	--							606		845			511				462			
Mercury	1.06	0.07							0.17		0.08			0.20				0.24			
Nickel	48.6	--							45		52			38.5				44.4			
Silver	5	--							0.60		0.55			0.33				0.92			
Zinc	459	--							868	638	1,550	664	584	630	509	985	752	938	817	314	
Low Molecular Weight PAHs (ug/kg)																					
Naphthalene	561	--	7.5 U	1 J	1 J	7.4 U	7.6 U	7.3 U	201	200 JD	270	295	50 JD	290	545 U	400 JD	64 JD	130	328 U	283 U	
Acenaphthylene	200	--	0.7 J	0.5 J	7.6 U	7.4 U	7.6 U	7.3 U	34	40 JD	42	377 U	20 JD	28	545 U	60 JD	37 JU	31	328 U	283 U	
Acenaphthene	300	--	7.5 U	7.6 U	7.6 U	7.4 U	7.6 U	7.3 U	125	200 JD	230	481	30 JD	21	545 U	720 U	26 JU	24	328 U	283 U	
Fluorene	536	--	7.5 U	0.8 J	7.6 U	7.4 U	7.6 U	7.3 U	571	100 JD	130	337	20 JD	26	545 U	3,600 D	72 JD	47	328 U	283 U	
Phenanthrene	1,170	--	7.5 U	13	3 J	7.4 U	7.6 U	7.3 U	1,146	1,500 D	950	3840	320 D	320	1590	3,600 D	660 JD	670	344	283 U	
Anthracene	845	--	0.9 J	2 J	7.6 U	7.4 U	7.6 U	7.3 U	505	400 JD	230	809	50 JD	56	314	2,600 D	140 JD	58	328 U	283 U	
2-Methylnaphthalene	200	--	0.6 J	1 J	1 J	7.4 U	0.5 J	7.3 U	123	100 JD	180	377 U	50 JD	33	545 U	400 JD	31 JU	80	328 U	283 U	
High Molecular Weight PAHs (ug/kg)																					
Fluoranthene	2,230	37,000	6 J	34	8 J	5 J	6 J	2 J	1,904	2,600 D	1,400	5380	690 D	660	2180	5,800 D	1,400 JD	780	754	177	
Pyrene	1,520	1,900	7 J	29	7 J	4 J	6 J	2 J	1,859	2,600 D	1,300	4520 J	770 D	640	1980 J	5,500 D	1,200 JD	1,000	634 J	189 J	
Benzo(a)anthracene	1,050	--	4 J	17	5 J	3 J	3 J	2 J	794	1,300 D	470	1780	440 D	220	950	2,500 D	400 JD	230	248	283 U	
Chrysene	1,290	--	7 J	28	7 J	5 J	6 J	2 J	1,561	2,000 D	880	2100	740 D	520	1120	5,300 D	1,100 JD	390	646	283 U	
Benzo(b)fluoranthene	--	--	5 J	25	6 J	4 J	5 J	2 J	1,461	2,000 D	930	3080	780 D	750 X	1380	4,100 D	1,100 JD	570	786	260 J	
Benzo(k)fluoranthene	13,000	--	5 J	22	6 J	3 J	4 J	2 J	885	1,500 D	300	1050	540 D	6 U	522	3,400 D	270 JD	180	245	283 U	
Benzo(a)pyrene	1,450	--	6 J	24	5 J	4 J	4 J	2 J	1,136	1,900 D	540	2600 J	670 D	330	545 U	3,700 D	490 JD	320	514 J	170	
Indeno(1,2,3-cd)pyrene	100	--	6 J	24	7 J	5 J	5 J	2 J	1,027	1,500 D	570	1450	490 D	400	5450 U	3,200 D	530 JD	500	342	283 U	
Dibenz(a,h)anthracene	1,300	--	1 J	5 J	1 J	1 J	1 J	1 J	231	300 JD	88	270	100 JD	78	5450 U	800 JD	150 JD	100	328 U	283 U	
Benzo(g,h,i)perylene	300	--	8 J	23	8 J	6 J	5 J	2 J	1,299	1,600 D	810	1530	500 D	690	5450 U	3,600 D	790 JD	1,100	354	248	
Miscellaneous Semivolatiles (ug/kg)																					
3- and 4-Methylphenol	--	--	150 U	150 U	150 U	150 U	150 U	150 U	NC	13,000 U	650 UJ	9410 U	1,900 U	7,100 J	13600 U	4,000 JD	3,000 JD	680 U	8190 U	7070 U	
Dibenzofuran	--	--	0.6 J	0.8 J	7.6 U	7.4 U	7.6 U	7.3 U	82	100 JD	100 JD	275	20 JD	20 JD	545 U	200 JD	69 JD	67	328 U	283 U	
Dimethyl Phthalate	--	--	15 U	4 J	0.7 J	1 J	1 J	1 J	ND		650 UJ	3770 U		640 UJ	5450 U			680 U	1740	2830 U	
Diethyl Phthalate	600	--							ND		650 UJ	3770 U		640 UJ	5450 U			680 U	3280 U	2830 U	
Di-n-butyl Phthalate	100	60							713		1,300 UJ	542 J		1,300 UJ	808 J			840 D	484 J	707 U	
Butyl Benzyl Phthalate	--	--							2,724	1,500 D	1,200 J	2210 J	2,500 D	7,600 J	9790 J	5,000 D	930 JD	680 U	1770 J	2830 U	
Bis(2-ethylhexyl) Phth.	800	330							9,900		8,700 J	5100 J		9,000 J	11900 J			12,000 D	18700 J	2990 J	
Di-n-octyl Phthalate	--	--	150 U	150 U	150 U	150 U	150 U	0.8 J	ND	13,000 U	13,000 UJ	2860 J	1,900 U	1,300 UJ	5450 U	14,000 U	11,000 JD	680 U	3090 J	1970	
Polychlorinated Biphenyls (ug/kg)																					
Arochlor 1016	530	--							ND		13 U	14 U		13 U	25.2 U			11 U	13.6 U	10.2 U	
Arochlor 1221	--	--							ND		26 U	14 U		26 U	25.2 U			22 U	13.6 U	10.2 U	
Arochlor 1232	--	--							ND		13 U	14 U		13 U	25.2 U			11 U	13.6 U	10.2 U	
Arochlor 1242	--	--							ND		23 P	14 U		13 U	25.2 U			11 U	13.6 U	10.2 U	
Arochlor 1248	1500	--							ND		13 U	14 U		13 U	25.2 U			11 U	13.6 U	10.2 U	
Arochlor 1254	300	--							47		57	20.0		28 Ui	74.2			69	41.5	8.64	
Arochlor 1260	200	--							50		46	14 U		30	25.2 U			75	27.3 U	10.2 U	
Total PCBs	676	0.39							100		126	20.0		30	74.2			144	41.5	8.64	

Table 1
Risk Screening Evaluation of Bank Soil and Catch Basin Sediment
McCall Oil and Chemical

	MacDonald PECs and other SQVs	ODEQ 2007 Bioaccumulation in SLVs	Bank Surface Soils						Stormwater Catch Basin Sediment											
			GP-14 0-2 Soil	GP-15 0-2 Soil	GP-16 0-2 Soil	GP-17 0-2 Soil	GP-18 0-2 Soil	GP-19 0-2 Soil	Mean Site-Wide*	S-1 Sediment	S-1 Sediment	S-1 Sediment	S-2 Sediment	S-2 Sediment	S-2 Sediment	S-3 Sediment	S-3 Sediment	S-3 Sediment	S-3 Sediment	S-4C Sediment
			12/13/00	12/13/00	12/13/00	12/13/00	12/14/00	12/14/00		12/15/00	11/12/07	05/21/10	12/15/00	11/12/07	05/21/10	12/15/00	11/04/04	05/02/07	05/21/10	05/21/10
Organochlorine Pesticides (ug/kg)																				
Aldrin	40	--									18.3 U				34.6 U				17.5 U	34.3 U
α - BHC	--	--									18.3 U				34.6 U				17.5 U	34.3 U
β - BHC	--	--									18.3 U				34.6 U				17.5 U	34.3 U
δ - BHC	--	--									18.3 U				34.6 U				17.5 U	34.3 U
γ - BHC (Lindane)	4.99	--									18.3 U				34.6 U				17.5 U	34.3 U
alpha - Chlordane	17.6	0.37									18.3 U				34.6 U				17.5 U	34.3 U
gamma - Chlordane	17.6	0.37									18.3 U				34.6 U				17.5 U	34.3 U
4,4'-DDD	--	--									18.3 U				34.6 U				17.5 U	34.3 U
4,4'-DDE	--	--									18.3 U				34.6 U				17.5 U	34.3 U
4,4'-DDT	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Dieldrin	61.8	0.0081									18.3 U				34.6 U				17.5 U	34.3 U
Endosulfan I	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Endosulfan II	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Endosulfan sulfate	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Endrin	207	--									18.3 U				34.6 U				17.5 U	34.3 U
Endrin Aldehyde	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Endrin ketone	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Heptachlor	10	--									18.3 U				34.6 U				17.5 U	34.3 U
Heptachlor epoxide	16	--									18.3 U				34.6 U				17.5 U	34.3 U
Methoxychlor	--	--									53.9 U				102 U				51.4 U	101 U
Chlordane (Technical)	--	--									216 U				407 U				205 U	403 U
Toxaphene (Total)	--	--									216 U				407 U				205 U	403 U
cis - Nonachlor	--	--									18.3 U				34.6 U				17.5 U	34.3 U
2,4'-DDD	--	--									18.3 U				34.6 U				17.5 U	34.3 U
2,4'-DDE	--	--									18.3 U				34.6 U				17.5 U	34.3 U
2,4'-DDT	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Hexachlorobenzene	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Hexachlorobutadiene	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Mirex	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Oxychlordane	--	--									18.3 U				34.6 U				17.5 U	34.3 U
trans - Nonachlor	--	--									18.3 U				34.6 U				17.5 U	34.3 U
Total Petroleum Hydrocarbons (mg/kg)																				
Gasoline	--	--	10 U	10 U	10 U	10 U	10 U	10 U	107	26 Y	13 U	9.51 U	9.51 U	9.51 U	16.1 U	580 Y	210 U	14 U	8.15 U	6.29 U
Diesel	--	--	14 F	10 U	10 U	13 H	21 H	10 U	1,141	400 H	590 DH	410	410	410	356	2,400 H	1,600 JH	1,400 DH	508	149
Residual Oil	--	--	55 F	30 Z	49 F	84 F	210 F	25 U	6,443	1,900 O	4,600 DO	3230	3230	3230	4730	7,600 DO	8,500 JO	9,300 DO	5320	2070
Total Petroleum	--	--	69	30	49	97	231	0	7,674	2,326	5,190	3,640	3,650	3,640	5,086	10,580	10,100	10,700	5,828	2,219

Legend:
 Concentration above ecological screening level
 Mean concentration above human health screening level
 * Site wide mean calculated through 2007
 ND Not detected
 NC Not calculated due to insufficient detections

Notes:
 U = not detected at or above the indicated method reporting limit.
 J = estimated concentration. D = reported result is from a dilution.

**Table 2
Risk Screening Evaluation of Site Stormwater
McCall Oil and Chemical**

	JSCS (2007) Screening Levels and Other Criteria							Site Stormwater Concentrations																								
	Aquatic Life Criterion	Reference	Drinking Water Criterion	Reference	Fish Consump. (17.5 g/day)	Reference	Willamette R. Background (g)	NPDES 1200-Z Permit Limit (h)	Mean Site-Wide	S-1	S-2	S-3	S-3	S-3	S-3	S-3	S-3															
										12/20/00	03/06/02	04/07/05	11/12/07	05/25/10	06/03/10	12/20/00	03/06/02	04/07/05	05/02/07	11/12/07	05/25/10	06/03/10	12/15/00	03/06/02	04/07/05	05/02/07	11/12/07	05/25/10	06/03/10			
Metals (ug/L)																																
Arsenic - Total	150	e	10	a	0.140	b	2		0.51	0.5 U	0.5 U	0.5 U	0.7	2.0 U	2.0 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.8	2.0 U	2.0 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.7	0.989	0.811	
Arsenic - Dissolved	150	e	10	a	0.140	b	2		0.35	--	--	0.5 U	0.5 U	2.0 U	2.0 U	--	--	--	0.5 U	0.6	2.0 U	2.0 U	--	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5	0.656	2.0 U	
Cadmium - Total	0.094	b	5	a	--	1			0.23	0.05 U	0.20 U	0.16	0.21	0.111	1.0 U	0.22	0.20 U	0.07	0.12	0.30	1.0 U	1.0 U	--	0.2 U	1.1	0.17	0.17	0.133	0.122			
Cadmium - Dissolved	0.094	b	5	a	--	1			0.21	--	--	0.07	0.07	0.111	1.0 U	--	--	0.05	0.05	0.10	1.0 U	1.0 U	0.63	--	0.96	0.15	0.15	0.122	1.0 U			
Chromium - Total	--		100	a	--	5.8			2.1	0.4	0.4	7.0	2.3	0.878	0.889	2.0	0.6	1.1	1.1	5.5	1.32	0.856	--	1.2	1.9	2.3	1.6	1.48	1.98			
Chromium - Dissolved	--		100	a	--	5.8			0.90	--	--	1.3	0.5	0.656	2.0 U	--	--	0.7	0.7	0.8	0.767	2.0 U	2.9	--	1.3	0.9	0.9	0.9	2.00 U			
Copper - Total	2.7	b	1,300	a	--	9		100	14	3.8	3.7	14	20	9.34	6.4	9.9	10	9.4	11.3	25.9	8.77	4.63	--	13.1	8.6	19	24	34.8	33.8			
Copper - Dissolved	2.7	b	1,300	a	--	9			10	--	--	7.9	9.6	6.97	4.8	--	--	6.0	8.8	8.3	6.48	3.19	30	--	7.1	13	18	22.9	16.5			
Lead - Total	0.54	b	15	a	--	13.3		400	8.5	0.43	0.31	27	10	1.82	1.34	5.9	1.1	2.3	3.2	24	2.93	0.9	--	2.3	4.1	4.9	4.0	7.03	7.79			
Lead - Dissolved	0.54	b	15	a	--	13.3			0.65	--	--	0.61	0.32	0.244	1.0 U	--	--	0.7	0.86	1.1	0.211	1.0 U	1.6	--	1.1	0.75	0.90	0.822	0.833			
Manganese - Total	120	d	--	a	100	b	150		54	--	--	--	25	--	--	--	--	--	8.4	72	--	--	--	--	--	24	23	--	--			
Manganese - Dissolved	120	d	50	a	100	b	150		19	--	--	--	0.7	--	--	--	--	--	3.3	21	--	--	--	--	--	14	19	--	--			
Mercury - Total	0.77	b	2	a	0.146	e	--		0.10	--	--	--	0.2 U	--	--	--	--	--	0.2 U	0.2 U	--	--	--	--	--	0.2 U	0.2 U	--	--			
Mercury - Dissolved	0.77	b	2	a	0.146	e	--		0.10	--	--	0.2 U	--	--	--	--	--	--	0.2 U	0.2 U	--	--	--	--	--	0.2 U	0.2 U	--	--			
Nickel - Total	16	b	730	c	4,600	b	5.5		3.3	--	--	--	2.3	--	--	--	--	--	1.2	3.8	--	--	--	--	--	2.7	2.7	--	--			
Nickel - Dissolved	16	b	730	c	4,600	b	5.5		1.9	--	--	--	0.9	--	--	--	--	--	1.2	1.2	--	--	--	--	--	1.9	2.5	--	--			
Silver - Total	0.12	e	100	a	--	0.3			0.04	--	--	--	0.02	--	--	--	--	--	0.02	0.02 U	--	--	--	--	--	0.07	0.02	--	--			
Silver - Dissolved	0.12	e	100	a	--	0.3			0.01	--	--	--	0.02 U	--	--	--	--	--	--	0.02 U	0.02 U	--	--	--	--	--	0.03	0.02 U	--	--		
Zinc - Total	36	b	5,000	a	26,000	b	38		170	200	195	87	154	329	229	113	73	51	149	353	84.8	51.6	--	84	189	375	334	109	124			
Zinc - Dissolved	36	b	5,000	a	26,000	b	38		161	--	--	48	92	293	206	--	--	43	101	184	72.8	49.1	596	--	182	301	312	98.5	81.4			
Low Molecular Weight PAHs (ug/L)																																
Naphthalene	194	f			--	--			0.02	0.03 J	0.03 J	0.03 J	0.03 J	0.0755 U	0.0444	0.07 J	0.03 J	0.01 U	0.02	0.02	0.0755 U	0.0762 U	0.07 J	0.03 J	0.01 U	0.01	0.02 U	0.0755 U	0.0386			
Acenaphthylene	307	f			--	--			0.02	0.01 J	0.01 U	0.04 J	0.02 U	0.0377 U	0.377 U	0.02 J	0.01 U	0.03 J	0.02 D	0.02 U	0.0377 U	0.0381 U	0.10 U	0.01 U	0.01 U	0.01 U	0.01 U	0.02 U	0.0377 U	0.0381 U		
Acenaphthene	56	f			990	b	--		0.03	0.02 J	0.01 U	0.01 U	0.02 U	0.0377 U	0.377 U	0.02 J	0.01 U	0.01 U	0.02 U	0.02 U	0.0377 U	0.0381 U	0.10 U	0.01 U	0.01 U	0.01 U	0.02 U	0.0377 U	0.0381 U			
Fluorene	39	f			5,300	b	--		0.05	0.02 J	0.01 U	0.03 J	0.02 U	0.0377 U	0.377 U	0.04 J	0.01 U	0.01 U	0.02 U	0.02 U	0.0377 U	0.0381 U	0.02 J	0.01 U	0.01 U	0.01 U	0.02 U	0.0377 U	0.0381 U			
Phenanthrene	19	f			--	--			0.10	0.07 J	0.03 J	0.19 J	0.07 J	0.0755 U	0.0755 U	0.25	0.04 J	0.05 J	0.03	0.04	0.0755 U	0.0594	0.20	0.05 J	0.06 J	0.02	0.03	0.0755 U	0.0762 U			
Anthracene	21	f			40,000	b	--		0.01	0.01 U	0.02 U	0.04 J	0.02 U	0.0377 U	0.377 U	0.02 J	0.02 U	0.02 U	0.01 U	0.02 U	0.0377 U	0.0381 U	0.10 U	0.02 U	0.02 U	0.01 U	0.02 U	0.0377 U	0.0381 U			
2-Methylnaphthalene	72	f			--	--			0.02	0.03 J	0.02 J	0.01 U	0.02 U	0.0755 U	0.0755 U	0.05 J	0.01 J	0.01 U	0.01 U	0.02 U	0.0755 U	0.0762 U	0.10	0.01 U	0.01 U	0.01 U	0.02 U	0.0755 U	0.0387			
High Molecular Weight PAHs (ug/L)																																
Fluoranthene	7.1	f			140	b	--		0.05	0.02 J	0.01 U	0.23	0.09 J	0.0377 U	0.377 U	0.10	0.02 J	0.06 J	0.02	0.03	0.0408	0.0743	0.06 J	0.02 J	0.04 J	0.02	0.02	0.0348	0.0381 U			
Pyrene	10	f			4,000	b	--		0.07	0.02 J	0.02 U	0.28	0.08 J	0.0207	0.377 U	0.12	0.03 J	0.06 J	0.02	0.03	0.0386	0.0766	0.03 J	0.02 J	0.04 J	0.02	0.02 U	0.0269	0.0381 U			
Benz(a)anthracene	2.2	f	0.2	a	0.018	b	--		0.015	0.005 U	0.012 U	0.081 J	0.031 J	0.0377 U	0.377 U	0.030 J	0.013 U	0.012 U	0.008 U	0.019 U	0.0377 U	0.0376	0.007 J	0.012 U	0.012 U	0.008 U	0.019 U	0.0377 U	0.0381 U			
Chrysene	2.0	f	0.2	a	0.018	b	--		0.032	0.008 J	0.014 U	0.140 J	0.066 J	0.0377 U	0.377 U	0.060 J	0.015 U	0.014 U	0.008 U	0.019 U	0.0227	0.0506	0.030 J	0.015 U	0.014 U	0.009	0.019 U	0.0285	0.0381 U			
Benzo(b)fluoranthene	0.68	f	0.2	a	0.018	b	--		0.024	0.006 J	0.020 U	0.150 J	0.065 J	0.0377 U	0.377 U	0.040 J	0.021 U	0.021 J	0.008 U	0.019 U	0.0238	0.0543	0.010 J	0.020 U	0.020 U	0.008 U	0.019 U	0.0273	0.0381 U			
Benzo(k)fluoranthene	0.64	f	0.2	a	0.018	b	--		0.013	0.004 J	0.020 U	0.049 J	0.021 J	0.0377 U	0.377 U	0.030 J	0.021 U	0.020 U	0.008 U	0.019 U	0.0377 U	0.0253	0.008 J	0.020 U	0.020 U	0.008 U	0.019 U	0.0377 U	0.0381 U			
Benzo(a)pyrene	0.96	f	0.2	a	0.018	b	--		0.019	0.006 U	0.016 U	0.100 J	0.031 J	0.0377 U	0.377 U	0.030 J	0.017 U	0.020 U	0.008 U	0.019 U	0.0377 U	0.0568	0.095 U	0.017 U	0.016 U	0.008 U	0.019 U	0.0377 U	0.0381 U			
Indeno(1,2,3-cd)pyrene	0.28	f	0.2	a	0.018	b	--		0.018	0.006 J	0.024 U	0.089 J	0.035 J	0.189 U	0.377 U	0.040 J	0.026 U	0.020 U	0.008 U	0.019 U	0.189 U	0.381 U	0.010 J	0.025 U	0.024 U	0.008 U	0.019 U	0.189 U	0.381 U			
Dibenz(a,h)anthracene	0.28	f	0.2	a	0.018	b	--		0.015	0.004 U	0.031 U	0.031 U	0.020 U	0.189 U	0.377 U	0.009 J	0.032 U	0.020 U	0.008 U	0.019 U	0.189 U	0.381 U	0.190 U	0.031 U	0.031 U	0.008 U	0.019 U	0.189 U	0.381 U			
Benzo(g,h,i)perylene	0.44	f	--		--	--			0.023	0.007 J	0.017 U	0.140 J	0.041 J	0.189 U	0.377 U	0.060 J	0.018 U	0.020 U	0.009	0.019 U	0.189 U	0.381 U	0.010 J	0.017 U	0.017 U	0.008 U	0.019 U	0.189 U	0.381 U			
Miscellaneous Semivolatiles																																
3- and 4-Methylphenol	--		180	c	--	--			0.19	0.30 J	0.23 J	0.05 U	0.50 U	0.943 U	0.943 U	0.49	0.09 J	0.05 U	0.48 U	0.50 U	0.943 U	0.952 U	0.48 U	0.22 J	0.12 J	0.48 U	0.49 U	0.943 U	0.952 U			
Dibenzofuran	3.7	d	12	c	--	--			0.03	0.01 J	0.014 U	0.014 U	0.02 U	0.0377 U	0.0377 U	0.02 J	0.01 U	0.01 U	0.02 U	0.02 U	0.0377 U	0.0381 U	0.01 U	0.02 J	0.01 U	0.01	0.02 U	0.0377 U	0.0381 U			
Dimethyl Phthalate	3.0	e	370,000	c	1.1E+06	--			0.37	--	--	--	0.36	1.89 U	1.89 U	--	--	--														

**Table 2
Risk Screening Evaluation of Site Stormwater
McCall Oil and Chemical**

	JSCS (2007) Screening Levels and				Site Stormwater Concentrations								
	Aquatic Life Criterion	Reference	Drinking Water Criterion	Reference	Fish Consump. (17.5 g/day)	S-4	S-4 Dupe	S-4	S-4	S-4	S-4	S-4	S-4
						12/15/00	12/15/00	04/09/02	04/07/05	05/02/07	11/12/07	05/25/10	06/03/10
Metals (ug/L)													
Arsenic - Total	150	e	10	a	0.140	--	--	0.6	0.5	1.5	1.1	1.1	0.744
Arsenic - Dissolved	150	e	10	a	0.140	0.5 U	0.5 U	--	0.5 U	0.5 U	0.8	0.922	2.0 U
Cadmium - Total	0.094	b	5	a	--	--	--	0.20	0.19	0.51	0.21	0.233	0.122
Cadmium - Dissolved	0.094	b	5	a	--	0.22	0.21	--	0.09	0.16	0.01	0.189	1.0 U
Chromium - Total	--		100	a	--	--	--	0.9	1.1	5.2	1.5	1.17	1.02
Chromium - Dissolved	--		100	a	--	0.8	0.6	--	0.2	0.50	0.50	0.789	2.00 U
Copper - Total	2.7	b	1,300	a	--	--	--	--	8.3	28	15	14.6	12.1
Copper - Dissolved	2.7	b	1,300	a	--	4.9	4.7	9.0	4.4	14	11	10.4	8.42
Lead - Total	0.54	b	15	a	--	--	--	3.3	6.2	36	9.9	2.51	2.1
Lead - Dissolved	0.54	b	15	a	--	0.05	0.04	--	0.09	0.54	0.39	0.322	0.222
Manganese - Total	120	d	--	a	100	--	--	--	--	169	55	--	--
Manganese - Dissolved	120	d	50	a	100	--	--	--	--	46	27	--	--
Mercury - Total	0.77	b	2	a	0.146	--	--	--	--	0.2 U	0.2 U	--	--
Mercury - Dissolved	0.77	b	2	a	0.146	--	--	--	--	0.2 U	0.2 U	--	--
Nickel - Total	16	b	730	c	4,600	--	--	--	--	6.9	3.8	--	--
Nickel - Dissolved	16	b	730	c	4,600	--	--	--	--	2.8	3.0	--	--
Silver - Total	0.12	e	100	a	--	--	--	--	--	0.12	0.02 U	--	--
Silver - Dissolved	0.12	e	100	a	--	--	--	--	--	0.02 U	0.02 U	--	--
Zinc - Total	36	b	5,000	a	26,000	--	--	87	90	252	103	81.3	59.9
Zinc - Dissolved	36	b	5,000	a	26,000	47.1	45	--	46.8	201	59	63.9	40.4
Low Molecular Weight PAHs (ug/L)													
Naphthalene	194	f			--	0.04 J	0.04 J	0.01 U	0.01 U	0.02 Ui	0.02 U	0.112 U	0.151 U
Acenaphthylene	307	f			--	0.10 U	0.10 U	0.01 U	0.01 U	0.01 U	0.02 U	0.0561 U	0.0755 U
Acenaphthene	56	f			990	0.14	0.12	0.09 J	0.01 U	0.01 U	0.02 U	0.0561 U	0.0755 U
Fluorene	39	f			5,300	0.36	0.34	0.17 J	0.01 U	0.01 U	0.02 U	0.0561 U	0.0755 U
Phenanthrene	19	f			--	0.46	0.35	0.07 J	0.03 J	0.03 Ui	0.02 U	0.112 U	0.151 U
Anthracene	21	f			40,000	0.02 J	0.01 J	0.02 U	0.02 U	0.01 U	0.02 U	0.0561 U	0.0755 U
2-Methylnaphthalene	72	f			--	0.09 J	0.10	0.01 U	0.01 U	0.01	0.02 U	0.112 U	0.151 U
High Molecular Weight PAHs (ug/L)													
Fluoranthene	7.1	f			140	0.06 J	0.05 J	0.01 U	0.01 U	0.05	0.02 U	0.0561 U	0.0755 U
Pyrene	10	f			4,000	0.19	0.16	0.10 J	0.10 J	0.08	0.03	0.0452	0.0436
Benz(a)anthracene	2.2	f	0.2	a	0.018	0.030 J	0.020 J	0.012 U	0.012 U	0.012	0.020 U	0.0561 U	0.0755 U
Chrysene	2.0	f	0.2	a	0.018	0.120	0.090 J	0.014 U	0.014 U	0.030	0.020 U	0.0561 U	0.0755 U
Benzo(b)fluoranthene	0.68	f	0.2	a	0.018	0.030 J	0.030 J	0.020 U	0.020 U	0.034	0.020 U	0.0561 U	0.0755 U
Benzo(k)fluoranthene	0.64	f	0.2	a	0.018	0.020 J	0.010 J	0.020 U	0.020 U	0.008 U	0.020 U	0.0561 U	0.0755 U
Benzo(a)pyrene	0.96	f	0.2	a	0.018	0.030 J	0.020 J	0.016 U	0.016 U	0.017	0.020 U	0.0561 U	0.0755 U
Indeno(1,2,3-cd)pyrene	0.28	f	0.2	a	0.018	0.020 J	0.020 J	0.024 U	0.024 U	0.020	0.020 U	0.187 U	0.0755 U
Dibenz(a,h)anthracene	0.28	f	0.2	a	0.018	0.009 J	0.008 J	0.031 U	0.031 U	0.008 U	0.020 U	0.187 U	0.0755 U
Benzo(g,h,i)perylene	0.44	f	--		--	0.040 J	0.030 J	0.017 U	0.017 U	0.027	0.020 U	0.187 U	0.0755 U
Miscellaneous Semivolatiles													
3- and 4-Methylphenol	--		180	c	--	0.20 J	0.20 J	0.05 U	0.05 U	0.48 U	0.47 U	1.4 U	1.89 U
Dibenzofuran	3.7	d	12	c	--	0.13	0.11	0.11 J	0.01 U	0.013 Ui	0.02 U	0.0561 U	0.0755 U
Dimethyl Phthalate	3.0	e	370,000	c	1.1E+06	--	--	--	--	0.29	0.25	2.8 U	3.77 U
Diethyl Phthalate	210	e	29,000	c	44,000	--	--	--	--	0.20 U	0.26	2.8 U	3.77 U
Di-n-butyl Phthalate	35	e	3,700	c	4,500	--	--	--	--	0.20 U	0.26	2.8 U	3.77 U
Butyl Benzyl Phthalate	19	e	7,300	c	1,900	--	--	--	--	0.20 U	0.26	2.8 U	3.77 U
Bis(2-ethylhexyl) Phth.	3.0	e	4.8	c	2.2	--	--	--	--	0.96 U	0.94 U	1.45	3.77 U
Di-n-octyl Phthalate	3.0	e	1,500	c	--	--	--	--	--	0.20 U	0.26	2.8 U	3.77 U

Table 2
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McCall Oil and Chemical

	JSCS (2007) Screening Levels and Other Criteria							Site Stormwater Concentrations																					
	Aquatic Life Criterion	Reference	Drinking Water Criterion	Reference	Fish Consump. (17.5 g/day)	Reference	Willamette R. Background (g)	NPDES 1200-Z Permit Limit (h)	Mean Site-Wide	S-1	S-1	S-1	S-1	S-1	S-1	S-2	S-3	S-3	S-3	S-3	S-3	S-3							
									12/20/00	03/06/02	04/07/05	11/12/07	05/25/10	06/03/10	12/20/00	03/06/02	04/07/05	05/02/07	11/12/07	05/25/10	06/03/10	12/15/00	03/06/02	04/07/05	05/02/07	11/12/07	05/25/10	06/03/10	
Polychlorinated Biphenyls																													
Arochlor 1016	--		0.96	c	--		--		0.10	--	--	--	0.20 U	0.0222 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0217 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0235 U	0.0377 U
Arochlor 1221	0.28	d	0.034	c	--		--		0.20	--	--	0.39 U	0.0222 U	0.0377 U	--	--	--	0.39 U	0.40 U	0.0217 U	0.0377 U	--	--	--	0.39 U	0.39 U	0.0235 U	0.0377 U	
Arochlor 1232	0.58	d	0.034	c	--		--		0.10	--	--	0.20 U	0.0222 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0217 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0235 U	0.0377 U	
Arochlor 1242	0.053	d	0.034	c	--		--		0.10	--	--	0.20 U	0.0222 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0217 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0235 U	0.0377 U	
Arochlor 1248	0.081	d	0.034	c	--		--		0.10	--	--	0.20 U	0.0222 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0217 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0235 U	0.0377 U	
Arochlor 1254	0.033	d	0.034	c	--		--		0.10	--	--	0.20 U	0.0222 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0217 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0235 U	0.0377 U	
Arochlor 1260	94	d	0.034	c	--		--		0.10	--	--	0.20 U	0.0222 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0217 U	0.0377 U	--	--	--	0.20 U	0.20 U	0.0235 U	0.0377 U	
Organochlorine Pesticides (ug/L)																													
Aldrin	--		0.004	c	0.00005	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
α - BHC	2.20	d	0.011	c	0.0049	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
β - BHC	--		0.037	c	0.017	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0472 U	
δ - BHC	--		0.037	c	--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
γ - BHC (Lindane)	0.08	e	0.052	c	1.8	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
alpha - Chlordane	0.0043	e	0.190	c	0.00081	b			--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0284 U	
gamma - Chlordane	0.0043	e	0.190	c	0.00081	b			--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0284 U	
2,4'-DDD	--		--		--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
2,4'-DDE	--		--		--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
2,4'-DDT	--		--		--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
4,4'-DDD	--		--		--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
4,4'-DDE	--		--		--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
4,4'-DDT	--		--		--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
DDT - Total	--		0.200	c	--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0379 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Dieldrin	0.0019	e	0.0042	c	0.000054	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Endosulfan I	0.051	d	220	c	89	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Endosulfan II	0.051	d	220	c	89	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Endosulfan sulfate	--		--		89	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Endrin	0.036	b	2.000	a	0.06	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Endrin Aldehyde	--		--		0.3	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Endrin ketone	--		--		--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Heptachlor	0.0038	b	0.015	c	0.000079	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Heptachlor epoxide	0.0038	b	0.007	c	0.000039	b			--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Methoxychlor	0.03	b	40	a	--				--	--	--	--	0.0758 U	0.0758 U	--	--	--	--	0.0758 U	0.0755 U	--	--	--	--	--	--	0.0758 U	0.0755 U	
Chlordane (Technical)	0.0043	b	0.190	c	0.00081	b			--	--	--	--	0.355 U	0.355 U	--	--	--	--	0.355 U	0.354 U	--	--	--	--	--	--	0.355 U	0.354 U	
Toxaphene (Total)	0.0002	b	0.061	c	0.00028	b			--	--	--	--	0.948 U	0.948 U	--	--	--	--	0.948 U	0.943 U	--	--	--	--	--	--	0.948 U	0.943 U	
cis - nonachlor	--		0.19	c	--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Hexachlorobenzene	--		--		--				--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0284 U	
Hexachlorobutadiene	--		--		--				--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0284 U	
Mirex	--		--		--				--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0284 U	
Oxychlordane	--		0.19	c	--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
trans - nonachlor	--		0.19	c	--				--	--	--	--	0.0284 U	0.0284 U	--	--	--	--	0.0284 U	0.0283 U	--	--	--	--	--	--	0.0284 U	0.0283 U	
Total Petroleum Hydrocarbons (mg/L)																													
Gasoline Range									0.23	1.1 Z	0.11 U	0.1 U	0.25 U	0.1 U	0.1 U	0.100 U	0.130 Z	0.100 U	0.250 U	0.250 U	0.1 U	0.1 U	1.300 Z	0.110 U	0.120 Z	0.250 U	0.250 U	0.1 U	0.1 U
Diesel Range									0.38	0.1 U	0.11 U	0.34 H	0.33 H	0.217	0.0895	0.100 U	0.110 U	0.310 Y	0.250 U	0.500 H	0.238	0.079	0.510 Z	0.110 Z	0.550 Y	0.290 Z	0.290 Y	0.291	0.103
Residual Oil Range									0.42	0.25 U	0.27 U	0.88 O	0.61 O	0.576	0.623	0.250 U	0.260 U	0.430 O	0.500 U	1.600 O	0.800	0.694	0.250 U	0.260 U	1.000 O	0.500 U	0.500 U	0.577	0.191
Total Petroleum								10	1.00	1.1	0	1.22	0.94	0.793	0.7125	0.000	0.130	0.740	0.000	2.100	1.038	0.773	1.810	0.110	1.670	0.290	0.290	0.868	0.294

Legend:

- Concentration above ecological screening level and Willamette River background
- Mean concentration above human health screening level and Willamette River
- * Site wide mean calculated through 2007

Notes:

- U = Not detected at indicated quantitation limit; J = Estimated concentration; Bold value = detected concentration
- (a) MCL
- (b) EPA 2004 NRWQC
- (c) Tap water PRGs
- (d) Oak Ridge National Laboratory's (Tier II SCV)
- (e) DEQ's 2004 AWQC (chronic)
- (f) EPA (2003) Final Chronic Values
- (g) Fuhrer et al., 1996; DEQ, 2002; 90th percentile value for Lower Columbia Basin
- (h) NPDES Oil and Grease Limit used to evaluate TPH

**Table 2
Risk Screening Evaluation of Site Stormwater
McCall Oil and Chemical**

	JSCS (2007) Screening Levels and				Site Stormwater Concentrations								
	Aquatic Life Criterion	Reference	Drinking Water Criterion	Reference	Fish Consump. (17.5 g/day)	S-4	S-4 Dupe	S-4	S-4	S-4	S-4	S-4	S-4
						12/15/00	12/15/00	04/09/02	04/07/05	05/02/07	11/12/07	05/25/10	06/03/10
Polychlorinated Biphenyls													
Arochlor 1016	--		0.96	c	--	--	--	--	--	0.20 U	0.20 U	0.0215 U	0.0377 U
Arochlor 1221	0.28	d	0.034	c	--	--	--	--	--	0.39 U	0.39 U	0.0215 U	0.0377 U
Arochlor 1232	0.58	d	0.034	c	--	--	--	--	--	0.20 U	0.20 U	0.0215 U	0.0377 U
Arochlor 1242	0.053	d	0.034	c	--	--	--	--	--	0.20 U	0.20 U	0.0215 U	0.0377 U
Arochlor 1248	0.081	d	0.034	c	--	--	--	--	--	0.20 U	0.20 U	0.0215 U	0.0377 U
Arochlor 1254	0.033	d	0.034	c	--	--	--	--	--	0.20 U	0.20 U	0.0215 U	0.0377 U
Arochlor 1260	94	d	0.034	c	--	--	--	--	--	0.20 U	0.20 U	0.0215 U	0.0377 U
Organochlorine Pesticides (ug/L)													
Aldrin	--		0.004	c	0.00005	--	--	--	--	--	--	0.0283 U	0.0284 U
α - BHC	2.20	d	0.011	c	0.0049	--	--	--	--	--	--	0.0283 U	0.0284 U
β - BHC	--		0.037	c	0.017	--	--	--	--	--	--	0.0376	0.0284 U
δ - BHC	--		0.037	c	--	--	--	--	--	--	--	0.0519	0.0474 U
γ - BHC (Lindane)	0.08	e	0.052	c	1.8	--	--	--	--	--	--	0.0283 U	0.0284 U
alpha - Chlordane	0.0043	e	0.190	c	0.00081	--	--	--	--	--	--	0.0283 U	0.0284 U
gamma - Chlordane	0.0043	e	0.190	c	0.00081	--	--	--	--	--	--	0.0283 U	0.0284 U
2,4'-DDD	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
2,4'-DDE	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
2,4'-DDT	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
4,4'-DDD	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
4,4'-DDE	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
4,4'-DDT	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
DDT - Total	--		0.200	c	--	--	--	--	--	--	--	0.0283 U	0.0284 U
Dieldrin	0.0019	e	0.0042	c	0.000054	--	--	--	--	--	--	0.0283 U	0.0284 U
Endosulfan I	0.051	d	220	c	89	--	--	--	--	--	--	0.0283 U	0.0284 U
Endosulfan II	0.051	d	220	c	89	--	--	--	--	--	--	0.0283 U	0.0284 U
Endosulfan sulfate	--		--		89	--	--	--	--	--	--	0.0283 U	0.0284 U
Endrin	0.036	b	2.000	a	0.06	--	--	--	--	--	--	0.0283 U	0.0284 U
Endrin Aldehyde	--		--		0.3	--	--	--	--	--	--	0.0283 U	0.0284 U
Endrin ketone	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
Heptachlor	0.0038	b	0.015	c	0.000079	--	--	--	--	--	--	0.0283 U	0.0284 U
Heptachlor epoxide	0.0038	b	0.007	c	0.000039	--	--	--	--	--	--	0.0283 U	0.0284 U
Methoxychlor	0.03	b	40	a	--	--	--	--	--	--	--	0.0755 U	0.0204
Chlordane (Technical)	0.0043	b	0.190	c	0.00081	--	--	--	--	--	--	0.354 U	0.355 U
Toxaphene (Total)	0.0002	b	0.061	c	0.00028	--	--	--	--	--	--	0.943 U	0.948 U
cis - nonachlor	--		0.19	c	--	--	--	--	--	--	--	0.0283 U	0.0284 U
Hexachlorobenzene	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
Hexachlorobutadiene	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
Mirex	--		--		--	--	--	--	--	--	--	0.0283 U	0.0284 U
Oxychlordane	--		0.19	c	--	--	--	--	--	--	--	0.0283 U	0.0284 U
trans - nonachlor	--		0.19	c	--	--	--	--	--	--	--	0.0283 U	0.0284 U
Total Petroleum Hydrocarbons (mg/L)													
Gasoline Range						0.270 Z	0.260 Z	0.220 H	0.100 U	0.250 U	0.250 U	0.1 U	0.1 U
Diesel Range						0.280 Z	0.300 Z	1.300 F	0.440 Y	1.000 Z	0.740 Y	0.400	0.252
Residual Oil Range						0.250 U	0.250 U	0.550 O	0.340 L	0.940 Z	0.500 U	0.610	0.460
Total Petroleum						0.550	0.560	2.070	0.780	1.940	0.740	1.010	0.712

Legend:
 Concentration above ecological screening level and Willamette River background
 Mean concentration above human screening level and Willamette River background
 * Site wide mean calculated through 2007

FIGURES

I:\CAD\Jobs\1030162-McCall_Portland\103016201-12.dwg FIG 1
May 09, 2003 2:16pm cdavidson

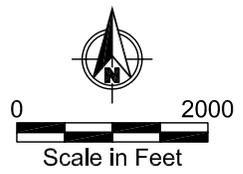
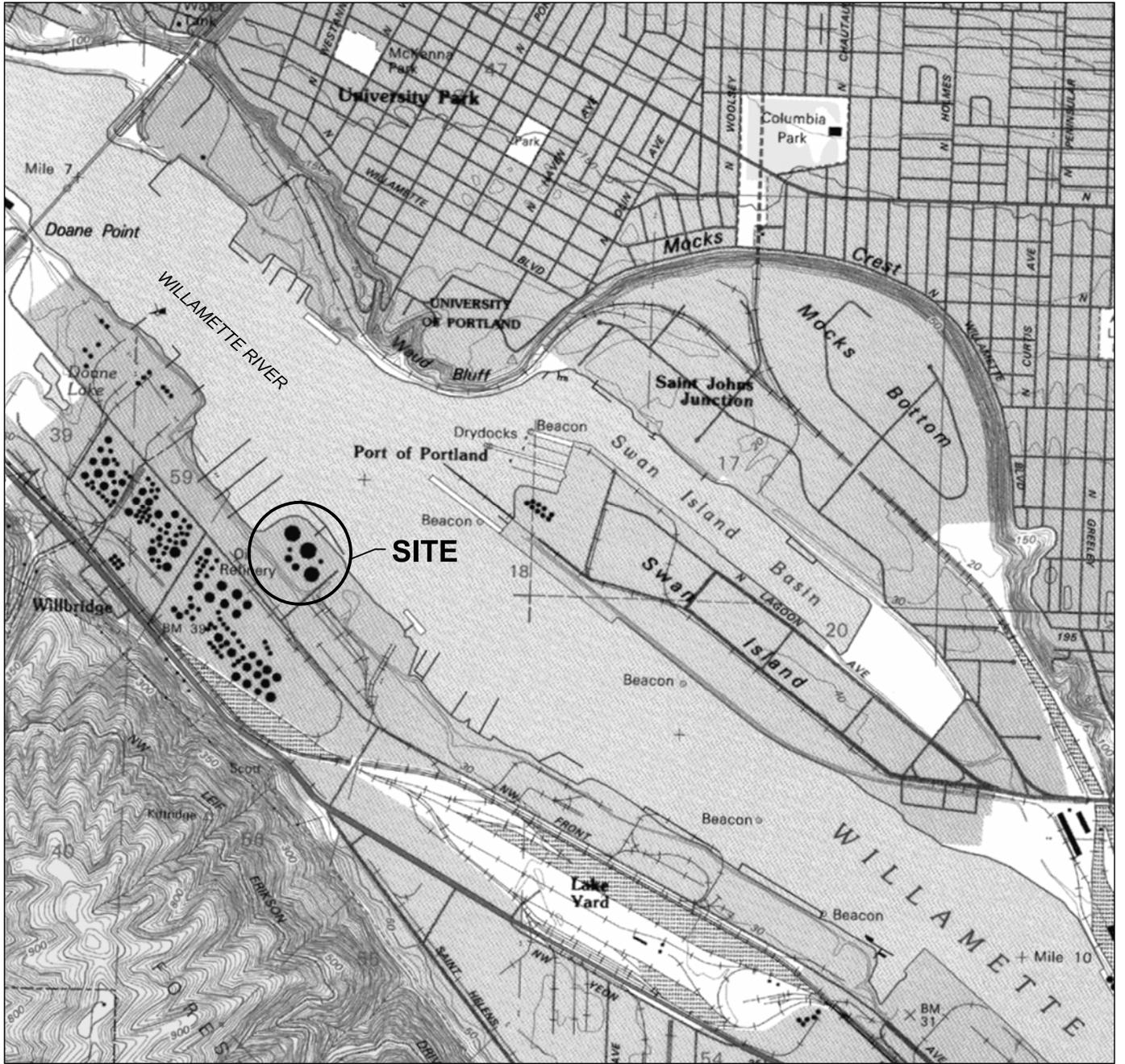
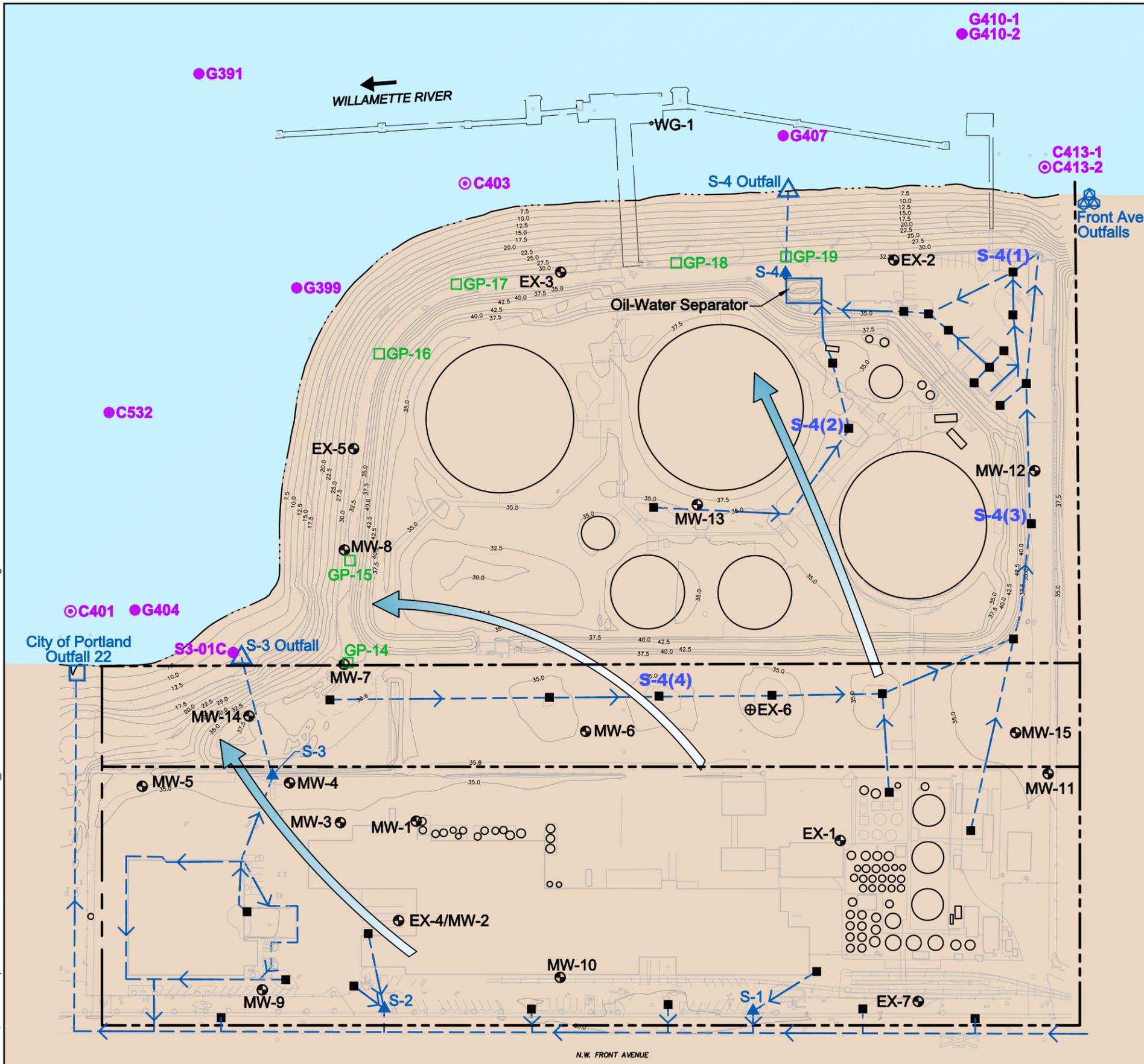
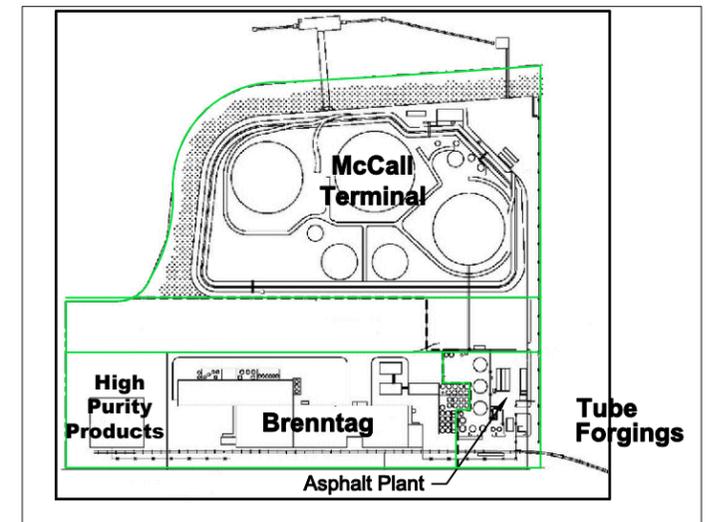


Figure 1
Vicinity Map
McCall Oil and Chemical

Jan 20, 2009 3:27pm cdavidson K:\jobs\030162-McCall_Portland\0301620103016201-RP-001.dwg FIG 4



- Generalized Groundwater Flow Direction
 - Property Boundary (approximate)
 - Storm Drain Line (approximate)
 - Front Ave LLP Outfall
 - McCall / Brenntag Outfall
 - City of Portland Outfall
 - Catch Basin
 - LWG Sediment Sample
 - LWG Bioassay Sample
 - Monitoring Well
 - Decommissioned Monitoring Well
 - Stormwater/Catch Basin Sample
 - Bank Surface Soil Sample
 - S-4(1) Location of composite sub-sample
 - Vegetation
 - Building
 - Tank
- Scale in Feet 0 150



Note: Figure prepared from base map provided by IT Corporation.

Horizontal Datum
Coordinates are on a local plane and are assumed.

Elevation Datum
Elevations are based on City of Portland Benchmark #2528.
Elevation = 34.64 Feet

ATTACHMENT A
FIELD SAMPLING DATA SHEETS

Daily Log



Anchor QEA, LLC
 6650 SW Redwood Lane, Suite 333
 Portland, OR 97224
 Phone 503.670.1108 Fax 503.670.1128

PROJECT NAME: McCull - FRONTAVE

DATE: 5/21/2010

SITE ADDRESS: 5700 FRONT AVE, PORTLAND, OR

PERSONNEL: TIM STONE, JOHN REUDA

WEATHER: WIND FROM:

N	NE	E	SE	S	SW	W	NW
SUNNY	CLOUDY	RAIN					?

 LIGHT MEDIUM HEAVY
 TEMPERATURE: 66 °F 16 °C
(Circle appropriate units)

TIME	COMMENTS
0800 - 0900	Mobilize, load equipment and sampling supplies
0900 - 0930	TRAVEL to site
0930 - 0955	Prepare to collect catchbasin sediment sample at location S-1
1000 -	collect sediment sample at S-1 (sample time = 10:00) <ul style="list-style-type: none"> • sample collected from above catch basin filter • no sediment accumulation below catch basin filter (see photo documentation)
	S-1 SAMPLE ID: MOC-052110-1 (10:00 / 5-21-10)
1045 - 1115	Meet w/ Ron Brown at facility regarding stormwater sample collection strategy <ul style="list-style-type: none"> • facility staff will collect stormwater from S-4 (oil water separator) within 30 minutes of discharge. • AQ staff will install stormwater capture devices in S-1 and S-2 to capture first 30 minutes of flow • AQ staff will collect stormwater samples at S-3 within 30 minutes of first flow into S-3 • Sample from S-1 and S-2 will be transferred into sample containers

Signature: Tim Stone

Daily Log



Anchor QEA, LLC
 6650 SW Redwood Lane, Suite 333
 Portland, OR 97224
 Phone 503.670.1108 Fax 503.670.1128

PROJECT NAME: _____

DATE: 5/21/2010

SITE ADDRESS: _____

PERSONNEL: Tim Stone / John Reusa

WEATHER:	WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
		SUNNY	CLOUDY	RAIN	?	TEMPERATURE: 46 °F °C						

[Circle appropriate units]

TIME	COMMENTS
11:15 -	Collect catch basin sediment sample
12:00	at S-2
	<ul style="list-style-type: none"> • sample collected above catch basin filter • no sediment accumulation below catch basin filter
	<u>S-2</u> Sample ID: MOC-052110-2 (11:45/5-21-10)
12:00 -	Collect catch basin sediment sample at S-3
13:00	• sample collected below catch basin filter
	•
	<u>S-3</u> Sample ID: MOC-052110-3 (12:30/5-21-10)
1330 -	INSPECT CHAMBERS IN OIL/WATER SEPERATOR (S-4)
1530	for presence of sediment accumulation
	• no sediment accumulation observed in oil/water separator chambers #1-4 (S-4)
	• collect composite sediment sample from above catch-basin filters at 4 catch basins that terminate at oil/water separator and discharge at S-4. (SEE map markings for locations)
	<u>S-4</u> Sample ID: MOC-052110-4 (1500/5-21-10)
1530 -	RETURN TRAVEL TO OFFICE
1600	
16:30	drop samples @ APEX Labs
1700	END OF DAY

Signature: _____

FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: McCall Oil

WELL ID: S-1

SITE ADDRESS: Portland, OR

BLIND ID: MOC-052510-3

DUP ID: ()

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		RAIN		?		TEMPERATURE: 50° F		

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

(Circle appropriate units)

[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)
5/25/10	16:15	FLOW to catch basin began @ 16:15					X 1 NA
/ /	:						X 3 NA
Gal/ft = (dia./2) ² x 0.163		1" = 0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080
						12" = 5.875	NA

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other = Grab

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[N if used]

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	✓
VOA Glass	5/25/10	16:25	G	3 40 ml	HCl	YES	NO		✓
Amber Glass	/ /	:	G	5/2 250, 500, 1L	(None) (HCl) (H ₂ SO ₄)	YES	NO		
White Poly	/ /	:	G	1 250, 500, 1L	None	YES	NO	NA	✓
Yellow Poly	/ /	:		250, 500, 1L	H ₂ SO ₄	YES	NO		
Green Poly	/ /	:		250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:	G	1 250, 500, 1L	HNO ₃	YES	NO		✓
Red Diss. Poly	/ /	:	G	1 250, 500, 1L	HNO ₃	YES	YES		✓
	/ /	:		250, 500, 1L		YES			

Total Bottles (include duplicate count): 12

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	(B200) <u>NI/TPH-GX</u>
	AMBER - Glass	(TPH-FIQ) (PAH) <u>B270D B082 B081A NI/TPH-Dx</u>
	WHITE - Poly	<u>TSS</u>
	YELLOW - Poly	
	GREEN - Poly	
	RED TOTAL - Poly	(As) <u>Cd</u> (Cr) (Cu) <u>Pb, ZN</u>
	RED DISSOLVED - Poly	(As) <u>Cd</u> (Cr) (Cu) <u>Pb, ZN</u>

WATER QUALITY DATA

Purge Start Time: NA

Pump/Bailer Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	Temp °C	Other	Diss O ₂ (mg/l)	Water Quality
4		.	.	.	.		.
3	B	.	.	.	.		.
2	B	.	.	.	.		.
1	B	.	.	.	.		.
0	<u>G</u>	0.00	6.29	28	15.88		.	clear / slightly cloudy w/ gray tint

[Casing] [Select A-G] [Cumulative Totals]

[Circle units]

[Clarify, Color]

* collected below catch-basin filter

SAMPLER: Tim Stone

(PRINTED NAME)

Tim Stone

(SIGNATURE)

FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108

Fax: (503) 670-1128

PROJECT NAME: McCall Oil
 SITE ADDRESS: Portland, OR

WELL ID: S-2
 BLIND ID: MOC-052510-2

DUP ID: ()

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		RAIN		?		TEMPERATURE: <u>50</u> °F		

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft) [Product Thickness] [Water Column] [Circle appropriate units] [Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)
<u>5/25/10</u>	<u>16:15</u>	<u>Flow to catch basin began @ 16:15</u>					X 1
/ /	:						X 3
Gal/ft = (dia./2) ² x 0.163		1" = 0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080
							12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other = Grab

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample) Sample Depth: [if used]

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	√
VOA Glass	<u>5/25/10</u>	<u>16:25</u>	<u>G</u>	<u>(3)</u> <u>40 ml</u>	<u>HCl</u>	<u>YES</u>	<u>NO</u>		<u>✓</u>
Amber Glass	/ /	:		<u>5/1</u> <u>250, 500, 1L</u>	<u>(None) / (HCl) / (H₂SO₄)</u>	<u>YES</u>	<u>NO</u>		<u>✓</u>
White Poly	/ /	:		<u>1</u> <u>250, 500, 1L</u>	<u>None</u>	<u>YES</u>	<u>NO</u>	<u>NA</u>	<u>✓</u>
Yellow Poly	/ /	:		<u>250, 500, 1L</u>	<u>H₂SO₄</u>	<u>YES</u>	<u>NO</u>		
Green Poly	/ /	:		<u>250, 500, 1L</u>	<u>NaOH</u>	<u>YES</u>	<u>NO</u>		
Red Total Poly	/ /	:		<u>1</u> <u>250, 500, 1L</u>	<u>(HNO₃)</u>	<u>YES</u>	<u>NO</u>		<u>✓</u>
Red Diss. Poly	/ /	:		<u>1</u> <u>250, 500, 1L</u>	<u>HNO₃</u>	<u>YES</u>	<u>YES</u>		<u>✓</u>
	/ /	:		<u>250, 500, 1L</u>		<u>YES</u>			

Total Bottles (include duplicate count): 12

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	<u>(8260B) NA <u>TPH-Ex</u></u>
	AMBER - Glass	<u>(TPH-FIQ) (PAH) <u>8270D 8082 8081 NWTPH-Dx</u></u>
	WHITE - Poly	<u>TSS</u>
	YELLOW - Poly	
	GREEN - Poly	
	RED TOTAL - Poly	<u>(As) <u>Cd</u> (Cr) (Cu) <u>Pb, Zn</u></u>
	RED DISSOLVED - Poly	<u>(As) <u>Cd</u> (Cr) (Cu) <u>Pb, Zn</u></u>

WATER QUALITY DATA Purge Start Time: NA Pump/Bailer Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	Temp °C	Other	Diss O ₂ (mg/l)	Water Quality
4		.	.		.		.
3	<u>B</u>	.	.		.		.
2	<u>B</u>	.	.		.		.
1	<u>B</u>	.	.		.		.
0	<u>G</u>	<u>0.00</u>	<u>7.11</u>	<u>120</u>	<u>16.84</u>			<u>Clear - slightly cloudy w/ grey tint</u>

[Casing] [Select A-G] [Cumulative Totals] [Circle units]

** collected below catch basin filter*

SAMPLER: Tim Stone
 (PRINTED NAME)

Tim Stone
 (SIGNATURE)

FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108

Fax: (503) 670-1128

PROJECT NAME: McCall Oil

WELL ID: S-3

SITE ADDRESS: Portland, OR

BLIND ID: MOC-052510-1

DUP ID: ()

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		RAIN		?	TEMPERATURE: 50			

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

(Circle appropriate units)

[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)
5/25/10	16:00	Flow to catch basin began @ 16:00					X 1
/ /	:	.	.	.	.	.	X 3

Gal/ft = (dia./2)² x 0.163 1" = 0.041 2" = 0.163 3" = 0.367 4" = 0.653 6" = 1.469 10" = 4.080 12" = 5.875 NA

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other = grabs

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[if used]

Bottle Type	Date	Time	Method	Amount & Volume mL	Preservative (circle)	Ice	Filter	pH	✓
VOA Glass	5/25/10	16:10	G	3	40 ml	HCl	YES	NO	✓
Amber Glass	/ /	:	:	5/1	250, 500, 1L	(None) (HCl) (H ₂ SO ₄)	YES	NO	✓
White Poly	/ /	:	:	1	250, 500, 1L	None	YES	NO	NA ✓
Yellow Poly	/ /	:	:		250, 500, 1L	H ₂ SO ₄	YES	NO	
Green Poly	/ /	:	:		250, 500, 1L	NaOH	YES	NO	
Red Total Poly	/ /	:	:	1	250, 500, 1L	HNO ₃	YES	NO	✓
Red Diss. Poly	/ /	:	:	1	250, 500, 1L	(HNO ₃)	YES	YES	✓
	/ /	:	:		250, 500, 1L		YES		

Total Bottles (include duplicate count): 12

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	(8200) <u>NUTPH-6K</u>
	AMBER - Glass	(TPHEO) (PAH) <u>8270D 8082 8081A NUTPH-DV</u>
	WHITE - Poly	<u>TSS</u>
	YELLOW - Poly	
	GREEN - Poly	
	RED TOTAL - Poly	(As) <u>Cd</u> (Cr) (Cu) <u>Pb, Zn</u>
	RED DISSOLVED - Poly	(As) <u>Cd</u> (Cr) (Cu) <u>Pb, Zn</u>

WATER QUALITY DATA			Purge Start Time:				Pump/Bailer Inlet Depth:	
Meas.	Method ^s	Purged (gal)	pH	E Cond (µS)	Temp °C	Other	Diss O ₂ (mg/l)	Water Quality
4		.	.	.	.		.
3	B	.	.	.	.		.
2	B	.	.	.	.		.
1	B	.	.	.	.		.
0	G	0.00	7.51	12	18.95		.	Clear-slightly cloudy w/ gray tint

[Casing] [Select A-G] [Cumulative Totals]

[Circle units]

[Clarity/Color]

* Sample collected above catch-basin filter as water entered catch basin

Clear-slightly cloudy w/ gray tint

SAMPLER: Tim Stone

(PRINTED NAME)

(SIGNATURE)

FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108

Fax: (503) 670-1128

PROJECT NAME: McCall Oil

WELL ID: S-4

SITE ADDRESS: Portland, OR

BLIND ID: MOC-052510-4

DUP ID: ()

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY	CLOUDY			RAIN			?	TEMPERATURE: 50		

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

(Circle appropriate units)

[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)	
5/25/10	16:22	MOC staff opens stormwater system valve and flow begins to S-4					X 1	
/ /	:						X 3	
Gal/ft = (dia./2) ² x 0.163	1" = 0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080	12" = 5.875	

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailor (D) PVC/Teflon Bailor (E) Dedicated Bailor (F) Dedicated Pump (G) Other = *grab*

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[if used]

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	✓
VOA Glass	5/25/10	16:40	G	3 (40 ml)	HCl	YES	NO		✓
Amber Glass	/ /			5/1 (250, 500, 1L)	(None)/(HCl) (H ₂ SO ₄)	YES	NO		✓
White Poly	/ /			1 (250, 500, 1L)	None	YES	NO	NA	✓
Yellow Poly	/ /				H ₂ SO ₄	YES	NO		
Green Poly	/ /				NaOH	YES	NO		
Red Total Poly	/ /			1 (250, 500, 1L)	HNO ₃	YES	NO		✓
Red Diss. Poly	/ /			1 (250, 500, 1L)	HNO ₃	YES	YES		✓
	/ /					YES			

Total Bottles (include duplicate count): 12

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	(B260B) <i>NUTPH-6x</i>
	AMBER - Glass	(PPH-100) (PAH) <i>NUTPH-2x (8082) (8270D) (8081A)</i>
	WHITE - Poly	<i>TSS</i>
	YELLOW - Poly	
	GREEN - Poly	
	RED TOTAL - Poly	(As) <i>cd</i> (Cr) (Cu) <i>Pb ZN</i>
	RED DISSOLVED - Poly	(As) <i>cd</i> (Cr) (Cu) <i>Pb ZN</i>

WATER QUALITY DATA

Purge Start Time: NA

Pump/Bailer Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	Temp °C	Other	Diss O ₂ (mg/l)	Water Quality
4		.	.		.		.
3	B	.	.		.		.
2	B	.	.		.		.
1	B	.	.		.		.
0	G	0.00	6.83	50	14.76		.	Clear/slightly cloudy w/ grey-tan tint

[Casing] [Select A-G] [Cumulative Totals]

[Circle units]

[Clarity, (ppm)]

* collected after catch basin filters at discharge chamber of oil/water separator

SAMPLER: Tim Stone
(PRINTED NAME)

(SIGNATURE)

FIELD SAMPLING DATA SHEET



ANCHOR
ENVIRONMENTAL, L.L.C.

6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108

Fax: (503) 670-1128

PROJECT NAME: McCall Oil

WELL ID: 5-1

SITE ADDRESS: Portland, OR

BLIND ID: MO-060310-3

DUP ID: ()

WIND FROM:	N	NE	E	SE	S	<u>SW</u>	W	NW	<u>LIGHT</u>	MEDIUM	HEAVY
WEATHER:	SUNNY		<u>CLOUDY</u>		<u>RAIN</u>		?		TEMPERATURE: <u>°F 53</u>		

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

(Circle appropriate units)

[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)	
6/3/10	19:05	Flow to catchbasin begins.					X 1	.
/ /	:						X 3	.
Gal/ft = (dia./2) ² × 0.163		1" = <u>NA</u>	2" = 0.163	3" =	4" = 0.367	6" = 1.469	10" = 4.080	12" = 5.655

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other = grab

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[√ if used]

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative (circle)	Ice	Filter	pH	√
VOA Glass	6/3/10	20:00	G	<u>3</u> <u>40 ml</u>	<u>HCl</u>	<u>YES</u>	<u>NO</u>		✓
Amber Glass	/ /	:		<u>5/1</u> 250, 500, 1L	(None) (HCl) (H ₂ SO ₄)	<u>YES</u>	<u>NO</u>		✓
White Poly	/ /	:		<u>1</u> 250, 500, 1L	<u>None</u>	<u>YES</u>	<u>NO</u>	NA	✓
Yellow Poly	/ /	:		250, 500, 1L	H ₂ SO ₄	YES	NO		
Green Poly	/ /	:		250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:		<u>1</u> <u>250</u> , 500, 1L	<u>HNO₃</u>	<u>YES</u>	<u>NO</u>		✓
Red Diss. Poly	/ /	:		<u>1</u> <u>250</u> , 500, 1L	<u>HNO₃</u>	<u>YES</u>	<u>YES</u>		✓
	/ /	:		250, 500, 1L		YES			

Total Bottles (include duplicate count): 12

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS - ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	(8260B) <u>NWTPH-Gx</u>
	AMBER - Glass	(TPH-BIO) (PAH) <u>8081A</u> <u>8082</u> <u>8270D</u> <u>NWTPH-Dx</u>
	WHITE - Poly	<u>755</u>
	YELLOW - Poly	
	GREEN - Poly	
	RED TOTAL - Poly	(As) <u>Pb</u> (Cr) (Cu) <u>Cd</u> <u>Zn</u>
	RED DISSOLVED - Poly	(As) <u>Pb</u> (Cr) (Cu) <u>Cd</u> <u>Zn</u>

WATER QUALITY DATA

Purge Start Time: NA

Pump/Bailer Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	Temp °C	Other	Diss O ₂ (mg/l)	Water Quality
4		.	.		.		.
3	B	.	.		.		.
2	B	.	.		.		.
1	B	.	.		.		.	Clear to slightly
0	G	0.00	6.39	34	14.66		.	Cloudy, grey tint

[Casing]

[Select A-G]

[Cumulative Totals]

[Circle units]

[Clarity, Color, etc.]

* collected from above catchbasin filter

SAMPLER: Tim Stone

(PRINTED NAME)

(SIGNATURE)

FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110
Portland, OR 97224

Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: McCall Oil

WELL ID: S-2

SITE ADDRESS: Portland, OR

BLIND ID: MO-060310-2

DUP ID: ()

WIND FROM:	N	NE	E	SE	S	<u>SW</u>	W	NW	<u>LIGHT</u>	MEDIUM	HEAVY
WEATHER:	SUNNY		<u>CLOUDY</u>			<u>RAIN</u>		?		TEMPERATURE: °F <u>54</u>	

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness] [Water Column]

[Circle appropriate units] [Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)		
6/3/10	18:45	flow to catch basin begins.					X 1	N/A	
/ /	:						X 3	.	
Gal/ft = (dia./2) ² × 0.163		NA	0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080	12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other = grab

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample)

Sample Depth:

[√ if used]

Bottle Type	Date	Time	Method [§]	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	√
VOA Glass	6/3/10	19:40	G	<u>3</u> <u>40 ml</u>	<u>HCl</u>	<u>YES</u>	<u>NO</u>		✓
Amber Glass	/ /	:		<u>5/1</u> 250, 500, <u>1L</u>	<u>(None)</u> <u>(HCl)</u> <u>(H₂SO₄)</u>	<u>YES</u>	<u>NO</u>		✓
White Poly	/ /	:		<u>1</u> 250, <u>500, 1L</u>	<u>None</u>	<u>YES</u>	<u>NO</u>	NA	✓
Yellow Poly	/ /	:		250, 500, 1L	H ₂ SO ₄	YES	NO		
Green Poly	/ /	:		250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:		<u>1</u> <u>250</u> , 500, 1L	<u>HNO₃</u>	<u>YES</u>	<u>NO</u>		✓
Red Diss. Poly	/ /	:		<u>1</u> <u>250</u> , 500, 1L	<u>HNO₃</u>	<u>YES</u>	<u>YES</u>		✓
	/ /	:		250, 500, 1L		YES			

Total Bottles (include duplicate count): 12

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	(8260B) <u>NWTPH-GX</u>
	AMBER - Glass	(TPH-FIQ) (PAH) <u>8081A 8082 8270D NWTPH-Dx</u>
	WHITE - Poly	<u>TSS</u>
	YELLOW - Poly	
	GREEN - Poly	
	RED TOTAL - Poly	(As) <u>Pb</u> (Cr) (Cu) <u>Cd Zn</u>
	RED DISSOLVED - Poly	(As) <u>Pb</u> (Cr) (Cu) <u>Cd Zn</u>

WATER QUALITY DATA

Purge Start Time: :

Pump/Bailer Inlet Depth:

Meas.	Method [§]	Purged (gal)	pH	E Cond (µS)	Temp °C	Other	Diss O ₂ (mg/l)	Water Quality
4		.	.		.		.
3	B	.	.		.		.
2	B	.	.		.		.
1	B	.	.		.		.
0	<u>G</u>	<u>0.00</u>	<u>7.24</u>	<u>97</u>	<u>13.24</u>		.	<u>Clear to slightly cloudy, grey line</u>

[Casing] [Select A-G] [Cumulative Totals]

[Circle units]

[Clarity, Color]

**collected from below catchbasin filter*

SAMPLER: Tim Stone

(PRINTED NAME)

(SIGNATURE)

FIELD SAMPLING DATA SHEET



ANCHOR
ENVIRONMENTAL, L.L.C.

6650 SW Redwood Lane, Suite 110
Portland, OR 97224
Office: (503) 670-1108 Fax: (503) 670-1128

PROJECT NAME: McCall Oil WELL ID: S-3
 SITE ADDRESS: Portland, OR BLIND ID: MO-060310-1

DUP ID: ()

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY		CLOUDY		RAIN		?		TEMPERATURE: °F 55		

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft) [Product Thickness] [Water Column] [Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)	
6/3/10	18:30	Flow to catch basin begins				.	.	X 1
/ /	:	.	.	.	.	.	.	X 3
Gal/ft = (dia./2) ² × 0.163		1" = 0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080	12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailor (D) PVC/Teflon Bailor (E) Dedicated Bailor (F) Dedicated Pump (G) Other = *grab*

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample) Sample Depth: [if used]

Bottle Type	Date	Time	Method §	Amount & Volume mL	Preservative [circle]	Ice	Filter	pH	√
VOA Glass	6/3/10	19:20	G	3 40 ml	HCl	YES	NO		✓
Amber Glass	/ /	:		5/1 250, 500, 1L	(None) (HCl) (H ₂ SO ₄)	YES	NO		
White Poly	/ /	:		1 250, 500, 1L	None	YES	NO	NA	
Yellow Poly	/ /	:		250, 500, 1L	H ₂ SO ₄	YES	NO		
Green Poly	/ /	:		250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:		1 250, 500, 1L	HNO ₃	YES	NO		
Red Diss. Poly	/ /	:		1 250, 500, 1L	HNO ₃	YES	YES		
	/ /	:		250, 500, 1L		YES			

Total Bottles (include duplicate count): 12

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	82600	NUTPH-Gx
AMBER - Glass	(TPH-HQ) (PAH)	8081A 8270D 8082 NUTPH-Dx
WHITE - Poly		TSS
YELLOW - Poly		
GREEN - Poly		
RED TOTAL - Poly	(As) Pb (Cr) (Cu) Cd Zn	
RED DISSOLVED - Poly	(As) Pb (Cr) (Cu) Cd Zn	

WATER QUALITY DATA Purge Start Time: NA Pump/Bailor Inlet Depth:

Meas.	Method §	Purged (gal)	pH	E Cond (µS)	Temp °C	Other	Diss O ₂ (mg/l)	Water Quality
4		.	.	.	.		.
3	B	.	.	.	.		.
2	B	.	.	.	.		.
1	BG	NA	7.68	23	16.76		.	Clear to slightly cloudy, grey tint
0	G	0.00	.	.	.		.

[Casing] [Select A-G] [Cumulative Totals] [Circle units] [Clarity/Color]

* collected from below catchbasin filter

SAMPLER: Tim Stone
 (PRINTED NAME) (SIGNATURE)

FIELD SAMPLING DATA SHEET



6650 SW Redwood Lane, Suite 110

Portland, OR 97224

Office: (503) 670-1108

Fax:

(503) 670-1128

PROJECT NAME: McCall Oil

WELL ID: S-4

SITE ADDRESS: Portland, OR

BLIND ID: MO-060310-4

DUP ID: ()

WIND FROM:	N	NE	E	SE	S	SW	W	NW	LIGHT	MEDIUM	HEAVY
WEATHER:	SUNNY	CLOUDY	RAIN						TEMPERATURE: °F	53.	

HYDROLOGY/LEVEL MEASUREMENTS (Nearest 0.01 ft)

[Product Thickness]

[Water Column]

[Circle appropriate units]

[Water Column x Gal/ft]

Date	Time	DT-Bottom	DT-Product	DT-Water	DTP-DTW	DTB-DTW	Volume (gal)		
6/3/10	09:00	Flow to S-1 begins (value opened by McCall)					X 1	.	
/ /	21:00	Stop					X 3	.	
Gal/ft = (dia./2) ² x 0.163		NA	0.041	2" = 0.163	3" = 0.367	4" = 0.653	6" = 1.469	10" = 4.080	12" = 5.875

§ METHODS: (A) Submersible Pump (B) Peristaltic Pump (C) Disposable Bailer (D) PVC/Teflon Bailer (E) Dedicated Bailer (F) Dedicated Pump (G) Other = grab

GROUNDWATER SAMPLING DATA (if product is detected, do NOT sample) Sample Depth: [N if used]

Bottle Type	Date	Time	Method	Amount & Volume mL	Preservative (circle)	Ice	Filter	pH	√
VOA Glass	6/3/10	21:25	G	3 40 ml	HCl	YES	NO		✓
Amber Glass	/ /	:	G	5/1 250, 500 (1L)	(None) (HCl) (H ₂ SO ₄)	YES	NO		
White Poly	/ /	:		1 250, 500, 1L	None	YES	NO	NA	✓
Yellow Poly	/ /	:		250, 500, 1L	H ₂ SO ₄	YES	NO		
Green Poly	/ /	:		250, 500, 1L	NaOH	YES	NO		
Red Total Poly	/ /	:		1 250, 500, 1L	HNO ₃	YES	NO		✓
Red Diss. Poly	/ /	:		1 250, 500, 1L	HNO ₃	YES	YES		✓
	/ /	:		250, 500, 1L		YES			

Total Bottles (include duplicate count): 12

Analysis Allowed per Bottle Type	BOTTLE TYPE	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	VOA - Glass	(8260B) <u>NWTPH-Gx</u>
	AMBER - Glass	(TPH-FIQ) (PAH) <u>8270D</u> <u>NWTPH-Dx</u> <u>8082</u> <u>8081A</u>
	WHITE - Poly	<u>755</u>
	YELLOW - Poly	
	GREEN - Poly	
	RED TOTAL - Poly	(As) <u>Cd</u> (Cr) (Cu) <u>Pb</u> <u>Zn</u>
	RED DISSOLVED - Poly	(As) <u>Cd</u> (Cr) (Cu) <u>Pb</u> <u>Zn</u>

WATER QUALITY DATA Purge Start Time: NA Pump/Bailer Inlet Depth:

Meas.	Method ^s	Purged (gal)	pH	E Cond (µS)	Temp °C	Other	Diss O ₂ (mg/l)	Water Quality
4		.	.	.	.		.
3	B	.	.	.	.		.
2	B	.	.	.	.		.
1	B	.	.	.	.		.
0	G	0.00	6.52	20	17.02		.	Clear to slightly cloudy

[Casing] [Select A-G] [Cumulative Totals] [Circle units] [Clarity, Color]

* Collected from discharge chamber of oil/water separator *tan grey tint*

SAMPLER: Tim Stone
(PRINTED NAME)

Tim Stone
(SIGNATURE)

ATTACHMENT B
LABORATORY REPORTS AND
CHAIN OF CUSTODY FORMS

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, June 16, 2010

John Renda
Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

RE: McCall Portland / No

Enclosed are the results of analyses for work order A10E224, which was received by the laboratory on 5/21/2010 at 4:15:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: dthomas@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland

6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**

Project Number: No
Project Manager: John Renda

Reported:
06/16/10 12:08

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MOC-052110-1	A10E224-01	Sediment	05/21/10 10:00	05/21/10 16:15
MOC-052110-2	A10E224-02	Sediment	05/21/10 11:45	05/21/10 16:15
MOC-052110-3	A10E224-03	Sediment	05/21/10 12:30	05/21/10 16:15
MOC-052110-4	A10E224-04	Sediment	05/21/10 15:00	05/21/10 16:15

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: McCall Portland
 Project Number: No
 Project Manager: John Renda

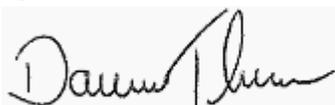
Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Diesel Range (C10-C22) and Oil Range (C22-C40) Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
MOC-052110-1 (A10E224-01) S-1			Matrix: Sediment		Batch: 1005419			
Diesel Range Organics	410	219	1090	mg/kg dry	20	05/26/10 21:04	NWTPH-Dx	J, F-07
Oil Range Organics	3230	438	2190	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: %</i>	<i>Limits: 50-150 %</i>	"	"	"	<i>S-01</i>
MOC-052110-2 (A10E224-02) S-2			Matrix: Sediment		Batch: 1005419			
Diesel Range Organics	356	322	1610	mg/kg dry	20	05/26/10 19:26	NWTPH-Dx	J, F-07
Oil Range Organics	4730	645	3220	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: %</i>	<i>Limits: 50-150 %</i>	"	"	"	<i>S-01</i>
MOC-052110-3 (A10E224-03) S-3			Matrix: Sediment		Batch: 1005419			
Diesel Range Organics	508	194	968	mg/kg dry	20	05/26/10 20:15	NWTPH-Dx	J, F-07
Oil Range Organics	5320	387	1940	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: %</i>	<i>Limits: 50-150 %</i>	"	"	"	<i>S-01</i>
MOC-052110-4 (A10E224-04RE1) S-4			Matrix: Sediment		Batch: 1005419			
Diesel Range Organics	149	65.0	325	mg/kg dry	4	05/27/10 10:44	NWTPH-Dx	J, F-07
Oil Range Organics	2070	130	650	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 102 %</i>	<i>Limits: 50-150 %</i>	"	"	"	<i>S-05</i>

Apex Laboratories



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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

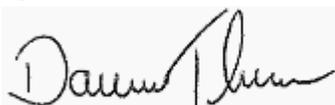
Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-052110-1 (A10E224-01) S-1				Matrix: Sediment				Batch: 1005344	V-06
Gasoline Range Organics	ND	4.75	9.51		mg/kg dry	50	05/21/10 18:03	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>				<i>Recovery: 80 %</i>		1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>				<i>95 %</i>		"	"	"	
MOC-052110-2 (A10E224-02) S-2				Matrix: Sediment				Batch: 1005344	V-10
Gasoline Range Organics	ND	8.05	16.1		mg/kg dry	50	05/21/10 18:28	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>				<i>Recovery: 85 %</i>		1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>				<i>94 %</i>		"	"	"	
MOC-052110-3 (A10E224-03) S-3				Matrix: Sediment				Batch: 1005344	V-06
Gasoline Range Organics	ND	4.07	8.15		mg/kg dry	50	05/21/10 18:53	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>				<i>Recovery: 87 %</i>		1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>				<i>96 %</i>		"	"	"	
MOC-052110-4 (A10E224-04) S-4				Matrix: Sediment				Batch: 1005344	V-06
Gasoline Range Organics	ND	3.15	6.29		mg/kg dry	50	05/21/10 19:17	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>				<i>Recovery: 84 %</i>		1	"	"	
<i>1,4-Difluorobenzene (Sur)</i>				<i>96 %</i>		"	"	"	

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/16/10 12:08

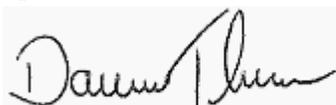
ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
MOC-052110-1 (A10E224-01) S-1			Matrix: Sediment		Batch: 1005394			C-07
Aroclor 1016	ND	6.98	14.0	ug/kg dry	1	05/25/10 18:38	EPA 8082A	
Aroclor 1221	ND	6.98	14.0	"	"	"	"	
Aroclor 1232	ND	6.98	14.0	"	"	"	"	
Aroclor 1242	ND	6.98	14.0	"	"	"	"	
Aroclor 1248	ND	6.98	14.0	"	"	"	"	
Aroclor 1254	20.0	6.98	14.0	"	"	"	"	
Aroclor 1260	ND	6.98	14.0	"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			Recovery: 51 %		Limits: 50-125 %		"	"
<i>Decachlorobiphenyl (Surr)</i>			62 %		Limits: 55-130 %		"	"
MOC-052110-2 (A10E224-02) S-2			Matrix: Sediment		Batch: 1005394			C-07
Aroclor 1016	ND	12.6	25.2	ug/kg dry	1	05/25/10 19:08	EPA 8082A	
Aroclor 1221	ND	12.6	25.2	"	"	"	"	
Aroclor 1232	ND	12.6	25.2	"	"	"	"	
Aroclor 1242	ND	12.6	25.2	"	"	"	"	
Aroclor 1248	ND	12.6	25.2	"	"	"	"	
Aroclor 1254	74.2	12.6	25.2	"	"	"	"	
Aroclor 1260	ND	12.6	25.2	"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			Recovery: 64 %		Limits: 50-125 %		"	"
<i>Decachlorobiphenyl (Surr)</i>			72 %		Limits: 55-130 %		"	"
MOC-052110-3 (A10E224-03) S-3			Matrix: Sediment		Batch: 1005394			C-07
Aroclor 1016	ND	6.81	13.6	ug/kg dry	1	05/25/10 19:22	EPA 8082A	
Aroclor 1221	ND	6.81	13.6	"	"	"	"	
Aroclor 1232	ND	6.81	13.6	"	"	"	"	
Aroclor 1242	ND	6.81	13.6	"	"	"	"	
Aroclor 1248	ND	6.81	13.6	"	"	"	"	
Aroclor 1254	41.5	6.81	13.6	"	"	"	"	
Aroclor 1260	ND	27.3	27.3	"	"	"	"	R-01
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			Recovery: 59 %		Limits: 50-125 %		"	"
<i>Decachlorobiphenyl (Surr)</i>			104 %		Limits: 55-130 %		"	"
MOC-052110-4 (A10E224-04) S-4			Matrix: Sediment		Batch: 1005394			C-07
Aroclor 1016	ND	5.08	10.2	ug/kg dry	1	05/25/10 19:37	EPA 8082A	
Aroclor 1221	ND	5.08	10.2	"	"	"	"	
Aroclor 1232	ND	5.08	10.2	"	"	"	"	
Aroclor 1242	ND	5.08	10.2	"	"	"	"	
Aroclor 1248	ND	5.08	10.2	"	"	"	"	
Aroclor 1254	8.64	5.08	10.2	"	"	"	"	J

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland 6650 SW Redwood Lane Ste. 333 Portland, OR 97224	Project: McCall Portland Project Number: No Project Manager: John Renda	Reported: 06/16/10 12:08
--	--	------------------------------------

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MOC-052110-4 (A10E224-04)			Matrix: Sediment		Batch: 1005394			C-07
Aroclor 1260	ND	5.08	10.2	ug/kg dry	1	"	EPA 8082A	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 50 %</i>	<i>Limits: 50-125 %</i>	"	"	"	
<i>Decachlorobiphenyl (Surr)</i>			<i>65 %</i>	<i>Limits: 55-130 %</i>	"	"	"	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
MOC-052110-1 (A10E224-01RE1)	S-1		Matrix: Sediment	Batch: 1005427				C-05
Aldrin	ND	5.39	18.3	ug/kg dry	1	05/27/10 11:19	EPA 8081B	
alpha-BHC	ND	5.39	18.3	"	"	"	"	
beta-BHC	ND	5.39	18.3	"	"	"	"	
delta-BHC	ND	5.39	18.3	"	"	"	"	
gamma-BHC (Lindane)	ND	5.39	18.3	"	"	"	"	
alpha-Chlordane	ND	5.39	18.3	"	"	"	"	
gamma-Chlordane	ND	5.39	18.3	"	"	"	"	
4,4'-DDD	ND	5.39	18.3	"	"	"	"	
4,4'-DDE	ND	5.39	18.3	"	"	"	"	
4,4'-DDT	ND	5.39	18.3	"	"	"	"	
Dieldrin	ND	5.39	18.3	"	"	"	"	
Endosulfan I	ND	5.39	18.3	"	"	"	"	
Endosulfan II	ND	5.39	18.3	"	"	"	"	
Endosulfan sulfate	ND	5.39	18.3	"	"	"	"	
Endrin	ND	5.39	18.3	"	"	"	"	
Endrin Aldehyde	ND	5.39	18.3	"	"	"	"	
Endrin ketone	ND	5.39	18.3	"	"	"	"	
Heptachlor	ND	5.39	18.3	"	"	"	"	
Heptachlor epoxide	ND	5.39	18.3	"	"	"	"	
Methoxychlor	ND	53.9	53.9	"	"	"	"	
Chlordane (Technical)	ND	108	216	"	"	"	"	
Toxaphene (Total)	ND	108	216	"	"	"	"	
cis-Nonachlor	ND	5.39	18.3	"	"	"	"	
2,4'-DDD	ND	5.39	18.3	"	"	"	"	
2,4'-DDE	ND	5.39	18.3	"	"	"	"	
2,4'-DDT	ND	5.39	18.3	"	"	"	"	
Hexachlorobenzene	ND	5.39	18.3	"	"	"	"	
Hexachlorobutadiene	ND	5.39	18.3	"	"	"	"	
Mirex	ND	5.39	18.3	"	"	"	"	
Oxychlordane	ND	5.39	18.3	"	"	"	"	
trans-Nonachlor	ND	5.39	18.3	"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 68 %</i>	<i>Limits: 50-125 %</i>	"	"	"	
<i>Decachlorobiphenyl (Surr)</i>			<i>95 %</i>	<i>Limits: 55-130 %</i>	"	"	"	

Apex Laboratories



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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

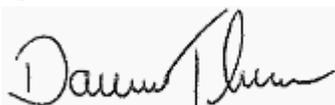
Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
MOC-052110-2 (A10E224-02RE1)	S-2		Matrix: Sediment	Batch: 1005427				C-05
Aldrin	ND	10.2	34.6	ug/kg dry	1	05/27/10 12:02	EPA 8081B	
alpha-BHC	ND	10.2	34.6	"	"	"	"	
beta-BHC	ND	10.2	34.6	"	"	"	"	
delta-BHC	ND	10.2	34.6	"	"	"	"	
gamma-BHC (Lindane)	ND	10.2	34.6	"	"	"	"	
alpha-Chlordane	ND	10.2	34.6	"	"	"	"	
gamma-Chlordane	ND	10.2	34.6	"	"	"	"	
4,4'-DDD	ND	10.2	34.6	"	"	"	"	
4,4'-DDE	ND	10.2	34.6	"	"	"	"	
4,4'-DDT	ND	10.2	34.6	"	"	"	"	
Dieldrin	ND	10.2	34.6	"	"	"	"	
Endosulfan I	ND	10.2	34.6	"	"	"	"	
Endosulfan II	ND	10.2	34.6	"	"	"	"	
Endosulfan sulfate	ND	10.2	34.6	"	"	"	"	
Endrin	ND	10.2	34.6	"	"	"	"	
Endrin Aldehyde	ND	10.2	34.6	"	"	"	"	
Endrin ketone	ND	10.2	34.6	"	"	"	"	
Heptachlor	ND	10.2	34.6	"	"	"	"	
Heptachlor epoxide	ND	10.2	34.6	"	"	"	"	
Methoxychlor	ND	102	102	"	"	"	"	
Chlordane (Technical)	ND	203	407	"	"	"	"	
Toxaphene (Total)	ND	203	407	"	"	"	"	
cis-Nonachlor	ND	10.2	34.6	"	"	"	"	
2,4'-DDD	ND	10.2	34.6	"	"	"	"	
2,4'-DDE	ND	10.2	34.6	"	"	"	"	
2,4'-DDT	ND	10.2	34.6	"	"	"	"	
Hexachlorobenzene	ND	10.2	34.6	"	"	"	"	
Hexachlorobutadiene	ND	10.2	34.6	"	"	"	"	
Mirex	ND	10.2	34.6	"	"	"	"	
Oxychlordane	ND	10.2	34.6	"	"	"	"	
trans-Nonachlor	ND	10.2	34.6	"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 70 %</i>	<i>Limits: 50-125 %</i>	"	"	"	
<i>Decachlorobiphenyl (Surr)</i>			<i>106 %</i>	<i>Limits: 55-130 %</i>	"	"	"	

Apex Laboratories



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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
MOC-052110-3 (A10E224-03RE1)	S-3		Matrix: Sediment	Batch: 1005427				C-05
Aldrin	ND	5.14	17.5	ug/kg dry	1	05/27/10 12:17	EPA 8081B	
alpha-BHC	ND	5.14	17.5	"	"	"	"	
beta-BHC	ND	5.14	17.5	"	"	"	"	
delta-BHC	ND	5.14	17.5	"	"	"	"	
gamma-BHC (Lindane)	ND	5.14	17.5	"	"	"	"	
alpha-Chlordane	ND	5.14	17.5	"	"	"	"	
gamma-Chlordane	ND	5.14	17.5	"	"	"	"	
4,4'-DDD	ND	17.5	17.5	"	"	"	"	
4,4'-DDE	ND	5.14	17.5	"	"	"	"	
4,4'-DDT	ND	17.5	17.5	"	"	"	"	
Dieldrin	ND	5.14	17.5	"	"	"	"	
Endosulfan I	ND	5.14	17.5	"	"	"	"	
Endosulfan II	ND	5.14	17.5	"	"	"	"	
Endosulfan sulfate	ND	5.14	17.5	"	"	"	"	
Endrin	ND	5.14	17.5	"	"	"	"	
Endrin Aldehyde	ND	5.14	17.5	"	"	"	"	
Endrin ketone	ND	5.14	17.5	"	"	"	"	
Heptachlor	ND	5.14	17.5	"	"	"	"	
Heptachlor epoxide	ND	5.14	17.5	"	"	"	"	
Methoxychlor	ND	51.4	51.4	"	"	"	"	
Chlordane (Technical)	ND	103	205	"	"	"	"	
Toxaphene (Total)	ND	103	205	"	"	"	"	
cis-Nonachlor	ND	5.14	17.5	"	"	"	"	
2,4'-DDD	ND	5.14	17.5	"	"	"	"	
2,4'-DDE	ND	5.14	17.5	"	"	"	"	
2,4'-DDT	ND	5.14	17.5	"	"	"	"	
Hexachlorobenzene	ND	5.14	17.5	"	"	"	"	
Hexachlorobutadiene	ND	5.14	17.5	"	"	"	"	
Mirex	ND	5.14	17.5	"	"	"	"	
Oxychlordane	ND	5.14	17.5	"	"	"	"	
trans-Nonachlor	ND	5.14	17.5	"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 64 %</i>	<i>Limits: 50-125 %</i>	"	"	"	
<i>Decachlorobiphenyl (Surr)</i>			<i>112 %</i>	<i>Limits: 55-130 %</i>	"	"	"	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
MOC-052110-4 (A10E224-04RE1)	S-4		Matrix: Sediment	Batch: 1005427				C-05
Aldrin	ND	10.1	34.3	ug/kg dry	1	05/27/10 12:31	EPA 8081B	
alpha-BHC	ND	10.1	34.3	"	"	"	"	
beta-BHC	ND	10.1	34.3	"	"	"	"	
delta-BHC	ND	10.1	34.3	"	"	"	"	
gamma-BHC (Lindane)	ND	10.1	34.3	"	"	"	"	
alpha-Chlordane	ND	10.1	34.3	"	"	"	"	
gamma-Chlordane	ND	10.1	34.3	"	"	"	"	
4,4'-DDD	ND	10.1	34.3	"	"	"	"	
4,4'-DDE	ND	10.1	34.3	"	"	"	"	
4,4'-DDT	ND	10.1	34.3	"	"	"	"	
Dieldrin	ND	10.1	34.3	"	"	"	"	
Endosulfan I	ND	10.1	34.3	"	"	"	"	
Endosulfan II	ND	10.1	34.3	"	"	"	"	
Endosulfan sulfate	ND	10.1	34.3	"	"	"	"	
Endrin	ND	10.1	34.3	"	"	"	"	
Endrin Aldehyde	ND	10.1	34.3	"	"	"	"	
Endrin ketone	ND	10.1	34.3	"	"	"	"	
Heptachlor	ND	10.1	34.3	"	"	"	"	
Heptachlor epoxide	ND	10.1	34.3	"	"	"	"	
Methoxychlor	ND	101	101	"	"	"	"	
Chlordane (Technical)	ND	202	403	"	"	"	"	
Toxaphene (Total)	ND	202	403	"	"	"	"	
cis-Nonachlor	ND	10.1	34.3	"	"	"	"	
2,4'-DDD	ND	10.1	34.3	"	"	"	"	
2,4'-DDE	ND	10.1	34.3	"	"	"	"	
2,4'-DDT	ND	10.1	34.3	"	"	"	"	
Hexachlorobenzene	ND	10.1	34.3	"	"	"	"	
Hexachlorobutadiene	ND	10.1	34.3	"	"	"	"	
Mirex	ND	10.1	34.3	"	"	"	"	
Oxychlordane	ND	10.1	34.3	"	"	"	"	
trans-Nonachlor	ND	10.1	34.3	"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 68 %</i>	<i>Limits: 50-125 %</i>	"	"	"	
<i>Decachlorobiphenyl (Surr)</i>			<i>108 %</i>	<i>Limits: 55-130 %</i>	"	"	"	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: McCall Portland
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting			Date Analyzed	Method	Notes
			Limit	Units	Dilution			
MOC-052110-1 (A10E224-01RE1) S-1			Matrix: Sediment	Batch: 1005446			C-05	
Acenaphthene	481	188	377	ug/kg dry	1	05/28/10 21:56	EPA 8270D	
Acenaphthylene	ND	188	377	"	"	"	"	
Anthracene	809	188	377	"	"	"	"	
Benz(a)anthracene	1780	188	377	"	"	"	"	
Benzo(a)pyrene	2600	188	377	"	"	"	M-02, Q-29	
Benzo(b)fluoranthene	3080	188	377	"	"	"	"	
Benzo(k)fluoranthene	1050	188	377	"	"	"	"	
Benzo(g,h,i)perylene	1530	188	377	"	"	"	"	
Chrysene	2100	188	377	"	"	"	"	
Dibenz(a,h)anthracene	270	188	377	"	"	"	J	
Fluoranthene	5380	188	377	"	"	"	B, B-02	
Fluorene	337	188	377	"	"	"	J	
Indeno(1,2,3-cd)pyrene	1450	188	377	"	"	"	"	
2-Methylnaphthalene	ND	188	377	"	"	"	"	
Naphthalene	295	188	377	"	"	"	J	
Phenanthrene	3840	188	377	"	"	"	"	
Pyrene	4520	188	377	"	"	"	Q-29	
Dibenzofuran	275	188	377	"	"	"	J	
3+4-Methylphenol(s)	ND	4710	9410	"	"	"	"	
Bis(2-ethylhexyl)phthalate	5100	1880	3770	"	"	"	Q-29	
Butyl benzyl phthalate	2210	1880	3770	"	"	"	J, Q-29	
Diethylphthalate	ND	1880	3770	"	"	"	"	
Dimethylphthalate	ND	1880	3770	"	"	"	"	
Di-n-butylphthalate	542	471	941	"	"	"	, B, B-02, Q-29	
Di-n-octyl phthalate	2860	1880	3770	"	"	"	J, Q-29	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 54 %</i>		<i>Limits: 35-120 %</i>	"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>64 %</i>		<i>Limits: 45-120 %</i>	"	"	"	
<i>Phenol-d6 (Surr)</i>		<i>63 %</i>		<i>Limits: 40-120 %</i>	"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>117 %</i>		<i>Limits: 30-125 %</i>	"	"	"	
<i>2-Fluorophenol (Surr)</i>		<i>46 %</i>		<i>Limits: 35-120 %</i>	"	"	"	
<i>2,4,6-Tribromophenol (Surr)</i>		<i>105 %</i>		<i>Limits: 35-125 %</i>	"	"	"	

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Anchor Environmental, LLC Portland
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 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting			Date Analyzed	Method	Notes
			Limit	Units	Dilution			
MOC-052110-2 (A10E224-02RE1)	S-2		Matrix: Sediment	Batch: 1005446				C-05
Acenaphthene	ND	273	545	ug/kg dry	1	05/28/10 22:31	EPA 8270D	
Acenaphthylene	ND	273	545	"	"	"	"	
Anthracene	314	273	545	"	"	"	"	J
Benz(a)anthracene	950	273	545	"	"	"	"	
Benzo(a)pyrene	ND	273	545	"	"	"	"	
Benzo(b)fluoranthene	1380	273	545	"	"	"	"	
Benzo(k)fluoranthene	522	273	545	"	"	"	"	J
Chrysene	1120	273	545	"	"	"	"	
Fluoranthene	2180	273	545	"	"	"	"	B, B-02
Fluorene	ND	273	545	"	"	"	"	
2-Methylnaphthalene	ND	273	545	"	"	"	"	
Naphthalene	ND	273	545	"	"	"	"	
Phenanthrene	1590	273	545	"	"	"	"	
Pyrene	1980	273	545	"	"	"	"	Q-29
Dibenzofuran	ND	273	545	"	"	"	"	
3+4-Methylphenol(s)	ND	6820	13600	"	"	"	"	
Bis(2-ethylhexyl)phthalate	11900	2730	5450	"	"	"	"	Q-29
Butyl benzyl phthalate	9790	2730	5450	"	"	"	"	Q-29
Diethylphthalate	ND	2730	5450	"	"	"	"	
Dimethylphthalate	ND	2730	5450	"	"	"	"	
Di-n-butylphthalate	808	682	1360	"	"	"	"	, B, B-02, Q-29
Di-n-octyl phthalate	ND	3930	5450	"	"	"	"	Q-29
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 56 %</i>		<i>Limits: 35-120 %</i>	"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>59 %</i>		<i>Limits: 45-120 %</i>	"	"	"	
<i>Phenol-d6 (Surr)</i>		<i>57 %</i>		<i>Limits: 40-120 %</i>	"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>118 %</i>		<i>Limits: 30-125 %</i>	"	"	"	
<i>2-Fluorophenol (Surr)</i>		<i>37 %</i>		<i>Limits: 35-120 %</i>	"	"	"	
<i>2,4,6-Tribromophenol (Surr)</i>		<i>111 %</i>		<i>Limits: 35-125 %</i>	"	"	"	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

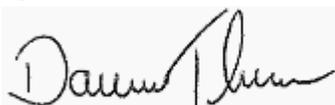
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ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting			Date Analyzed	Method	Notes
			Limit	Units	Dilution			
MOC-052110-2 (A10E224-02RE2)			Matrix: Sediment	Batch: 1005446				C-05, R-04
Benzo(g,h,i)perylene	ND	2730	5450	ug/kg dry	10	06/02/10 22:43	EPA 8270D	
Dibenz(a,h)anthracene	ND	2730	5450	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	2730	5450	"	"	"	"	
MOC-052110-3 (A10E224-03RE1) S-3			Matrix: Sediment	Batch: 1005446				C-05
Acenaphthene	ND	164	328	ug/kg dry	1	05/28/10 23:07	EPA 8270D	
Acenaphthylene	ND	164	328	"	"	"	"	
Anthracene	ND	164	328	"	"	"	"	
Benzo(a)anthracene	248	164	328	"	"	"	"	J
Benzo(a)pyrene	514	164	328	"	"	"	"	M-02, Q-29
Benzo(b)fluoranthene	786	164	328	"	"	"	"	
Benzo(k)fluoranthene	245	164	328	"	"	"	"	J
Benzo(g,h,i)perylene	354	164	328	"	"	"	"	
Chrysene	646	164	328	"	"	"	"	
Dibenz(a,h)anthracene	ND	164	328	"	"	"	"	
Fluoranthene	754	164	328	"	"	"	"	B, B-02
Fluorene	ND	164	328	"	"	"	"	
Indeno(1,2,3-cd)pyrene	342	164	328	"	"	"	"	
2-Methylnaphthalene	ND	164	328	"	"	"	"	
Naphthalene	ND	164	328	"	"	"	"	
Phenanthrene	344	164	328	"	"	"	"	
Pyrene	634	164	328	"	"	"	"	Q-29
Dibenzofuran	ND	164	328	"	"	"	"	
3+4-Methylphenol(s)	ND	4100	8190	"	"	"	"	
Bis(2-ethylhexyl)phthalate	18700	1640	3280	"	"	"	"	Q-29
Butyl benzyl phthalate	1770	1640	3280	"	"	"	"	J, Q-29
Diethylphthalate	ND	1640	3280	"	"	"	"	
Dimethylphthalate	1740	1640	3280	"	"	"	"	J
Di-n-butylphthalate	484	410	819	"	"	"	"	, B, B-02, Q-29
Di-n-octyl phthalate	3090	1640	3280	"	"	"	"	J, Q-29
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 42 %</i>		<i>Limits: 35-120 %</i>		"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>38 %</i>		<i>Limits: 45-120 %</i>		"	"	S-06
<i>Phenol-d6 (Surr)</i>		<i>47 %</i>		<i>Limits: 40-120 %</i>		"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>131 %</i>		<i>Limits: 30-125 %</i>		"	"	S-06
<i>2-Fluorophenol (Surr)</i>		<i>33 %</i>		<i>Limits: 35-120 %</i>		"	"	S-06
<i>2,4,6-Tribromophenol (Surr)</i>		<i>104 %</i>		<i>Limits: 35-125 %</i>		"	"	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

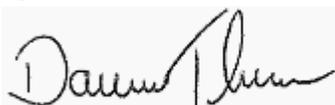
Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting			Date Analyzed	Method	Notes
			Limit	Units	Dilution			
MOC-052110-4 (A10E224-04RE1) S-4			Matrix: Sediment		Batch: 1005446			C-05, R-04
Acenaphthene	ND	283	565	ug/kg dry	2	05/28/10 23:42	EPA 8270D	
Acenaphthylene	ND	283	565	"	"	"	"	
Anthracene	ND	283	565	"	"	"	"	
Benz(a)anthracene	ND	283	565	"	"	"	"	
Benzo(a)pyrene	385	283	565	"	"	"	"	J, Q-29
Benzo(b)fluoranthene	ND	283	565	"	"	"	"	
Benzo(k)fluoranthene	ND	283	565	"	"	"	"	
Benzo(g,h,i)perylene	ND	283	565	"	"	"	"	
Chrysene	595	283	565	"	"	"	"	
Dibenz(a,h)anthracene	ND	283	565	"	"	"	"	
Fluoranthene	ND	283	565	"	"	"	"	
Fluorene	ND	283	565	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	283	565	"	"	"	"	
2-Methylnaphthalene	ND	283	565	"	"	"	"	
Naphthalene	ND	283	565	"	"	"	"	
Phenanthrene	ND	283	565	"	"	"	"	
Pyrene	ND	283	565	"	"	"	"	
Dibenzofuran	ND	283	565	"	"	"	"	
3+4-Methylphenol(s)	ND	7070	14100	"	"	"	"	
Bis(2-ethylhexyl)phthalate	3260	2830	5650	"	"	"	"	J, Q-29
Butyl benzyl phthalate	ND	2830	5650	"	"	"	"	
Diethylphthalate	ND	2830	5650	"	"	"	"	
Dimethylphthalate	ND	2830	5650	"	"	"	"	
Di-n-butylphthalate	ND	707	1410	"	"	"	"	
Di-n-octyl phthalate	3890	2830	5650	"	"	"	"	J, Q-29
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 45 %</i>		<i>Limits: 35-120 %</i>	"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>48 %</i>		<i>Limits: 45-120 %</i>	"	"	"	
<i>Phenol-d6 (Surr)</i>		<i>46 %</i>		<i>Limits: 40-120 %</i>	"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>113 %</i>		<i>Limits: 30-125 %</i>	"	"	"	
<i>2-Fluorophenol (Surr)</i>		<i>32 %</i>		<i>Limits: 35-120 %</i>	"	"	"	
<i>2,4,6-Tribromophenol (Surr)</i>		<i>115 %</i>		<i>Limits: 35-125 %</i>	"	"	"	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting			Date Analyzed	Method	Notes
			Limit	Units	Dilution			
MOC-052110-4 (A10E224-04RE2)			Matrix: Sediment	Batch: 1005446			C-05, Q-34, R-04	
Acenaphthene	ND	141	283	ug/kg dry	1	05/31/10 14:53	EPA 8270D	
Acenaphthylene	ND	141	283	"	"	"	"	
Anthracene	ND	141	283	"	"	"	"	
Benz(a)anthracene	ND	141	283	"	"	"	"	
Benzo(a)pyrene	170	141	283	"	"	"	" J, Q-29	
Benzo(b)fluoranthene	260	141	283	"	"	"	" J	
Benzo(k)fluoranthene	ND	141	283	"	"	"	"	
Benzo(g,h,i)perylene	248	141	283	"	"	"	" J, Q-06	
Chrysene	ND	141	283	"	"	"	"	
Dibenz(a,h)anthracene	ND	141	283	"	"	"	" Q-06	
Fluoranthene	177	141	283	"	"	"	" J, B	
Fluorene	ND	141	283	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	141	283	"	"	"	" Q-06	
2-Methylnaphthalene	ND	141	283	"	"	"	"	
Naphthalene	ND	141	283	"	"	"	"	
Phenanthrene	ND	141	283	"	"	"	"	
Pyrene	189	141	283	"	"	"	" J, Q-29	
Dibenzofuran	ND	141	283	"	"	"	"	
3+4-Methylphenol(s)	ND	3530	7070	"	"	"	"	
Bis(2-ethylhexyl)phthalate	2990	1410	2830	"	"	"	" Q-23, Q-29	
Butyl benzyl phthalate	ND	1410	2830	"	"	"	"	
Diethylphthalate	ND	1410	2830	"	"	"	"	
Dimethylphthalate	ND	1410	2830	"	"	"	"	
Di-n-butylphthalate	ND	353	707	"	"	"	"	
Di-n-octyl phthalate	1970	1410	2830	"	"	"	" J	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 52 %</i>		<i>Limits: 35-120 %</i>	"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>50 %</i>		<i>Limits: 45-120 %</i>	"	"	"	
<i>Phenol-d6 (Surr)</i>		<i>48 %</i>		<i>Limits: 40-120 %</i>	"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>112 %</i>		<i>Limits: 30-125 %</i>	"	"	"	
<i>2-Fluorophenol (Surr)</i>		<i>34 %</i>		<i>Limits: 35-120 %</i>	"	"	" S-06	
<i>2,4,6-Tribromophenol (Surr)</i>		<i>99 %</i>		<i>Limits: 35-125 %</i>	"	"	"	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: McCall Portland
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
MOC-052110-1 (A10E224-01) S-1			Matrix: Sediment		Batch: 1006009			
Arsenic	3.58	0.156	0.972	mg/kg dry	5	06/02/10 17:57	EPA 6020	
Cadmium	1.05	0.0778	0.778	"	"	"	"	
Chromium	65.6	0.0875	0.972	"	"	"	"	
Copper	90.5	0.107	0.875	"	"	"	"	
Lead	124	0.0486	0.972	"	"	"	"	
Zinc	664	2.97	9.72	"	25	06/02/10 18:15	"	
MOC-052110-2 (A10E224-02) S-2			Matrix: Sediment		Batch: 1006009			
Arsenic	3.49	0.230	1.44	mg/kg dry	5	06/02/10 18:00	EPA 6020	
Cadmium	0.976	0.115	1.15	"	"	"	"	J
Chromium	59.9	0.129	1.44	"	"	"	"	
Copper	96.1	0.158	1.29	"	"	"	"	
Lead	138	0.0718	1.44	"	"	"	"	
Zinc	509	0.876	2.87	"	"	"	"	
MOC-052110-3 (A10E224-03) S-3			Matrix: Sediment		Batch: 1006009			
Arsenic	45.4	0.134	0.840	mg/kg dry	5	06/02/10 18:03	EPA 6020	
Cadmium	1.67	0.0672	0.672	"	"	"	"	
Chromium	154	0.0756	0.840	"	"	"	"	
Copper	1280	0.462	1.68	"	25	06/04/10 11:48	"	
Lead	438	0.210	4.20	"	"	"	"	
Zinc	817	2.56	8.40	"	"	"	"	
MOC-052110-4 (A10E224-04) S-4			Matrix: Sediment		Batch: 1006009			
Arsenic	3.03	0.116	0.726	mg/kg dry	5	06/02/10 18:06	EPA 6020	
Cadmium	0.987	0.0581	0.581	"	"	"	"	
Chromium	25.1	0.0653	0.726	"	"	"	"	
Copper	79.9	0.0798	0.653	"	"	"	"	
Lead	28.1	0.0363	0.726	"	"	"	"	
Zinc	314	0.443	1.45	"	"	"	"	

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 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

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ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MOC-052110-1 (A10E224-01) S-1			Matrix: Sediment		Batch: 1005457			
Total Organic Carbon	101000	100	200	mg/kg	1	05/30/10 16:15	SM 5310B MOD	
MOC-052110-2 (A10E224-02) S-2			Matrix: Sediment		Batch: 1005457			
Total Organic Carbon	163000	100	200	mg/kg	1	06/01/10 13:25	SM 5310B MOD	ESTa
MOC-052110-3 (A10E224-03RE1) S-3			Matrix: Sediment		Batch: 1005457			
Total Organic Carbon	121000	100	200	mg/kg	1	06/02/10 13:30	SM 5310B MOD	
MOC-052110-4 (A10E224-04) S-4			Matrix: Sediment		Batch: 1005457			
Total Organic Carbon	41200	100	200	mg/kg	1	06/02/10 13:30	SM 5310B MOD	

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ANALYTICAL SAMPLE RESULTS

Percent Dry Weight by D2216

Analyte	Result	MDL	Reporting		Dilution	Date Analyzed	Method	Notes
			Limit	Units				
MOC-052110-1 (A10E224-01) S-1			Matrix: Sediment	Batch: 1005396				
% Solids	52.9	1.00	1.00	% by Weight	1	05/26/10 09:43	Apex SOP	
MOC-052110-2 (A10E224-02) S-2			Matrix: Sediment	Batch: 1005396				
% Solids	36.2	1.00	1.00	% by Weight	1	05/26/10 09:43	Apex SOP	
MOC-052110-3 (A10E224-03) S-3			Matrix: Sediment	Batch: 1005396				
% Solids	60.5	1.00	1.00	% by Weight	1	05/26/10 09:43	Apex SOP	
MOC-052110-4 (A10E224-04) S-4			Matrix: Sediment	Batch: 1005396				
% Solids	69.3	1.00	1.00	% by Weight	1	05/26/10 09:43	Apex SOP	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel Range (C10-C22) and Oil Range (C22-C40) Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005419 - EPA 3546 (Fuels)						Soil						
Blank (1005419-BLK1)						Prepared: 05/26/10 12:55 Analyzed: 05/26/10 19:26						
NWTPH-Dx												
Diesel Range Organics	ND	4.00	20.0	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	8.00	40.0	"	"	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (1005419-BS1)						Prepared: 05/26/10 12:55 Analyzed: 05/26/10 19:50						
NWTPH-Dx												
Diesel Range Organics	85.3	4.00	20.0	mg/kg wet	1	83.3	---	102	70-130%	---	---	
Oil Range Organics	91.4	8.00	40.0	"	"	"	---	110	"	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
Duplicate (1005419-DUP1)						Prepared: 05/26/10 12:55 Analyzed: 05/26/10 21:04						
QC Source Sample: MOC-052110-3 (A10E224-03)												
NWTPH-Dx												
Diesel Range Organics	521	198	989	mg/kg dry	20	---	508	---	---	2	40%	J, F-07
Oil Range Organics	5880	396	1980	"	"	---	5320	---	---	10	40%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 20x</i>						<i>S-01</i>
Duplicate (1005419-DUP2)						Prepared: 05/26/10 18:30 Analyzed: 05/27/10 00:39						
QC Source Sample: Other (A10E265-10)												
NWTPH-Dx												
Diesel Range Organics	ND	5.29	26.5	mg/kg dry	1	---	ND	---	---		40%	
Oil Range Organics	ND	10.6	52.9	"	"	---	ND	---	---		40%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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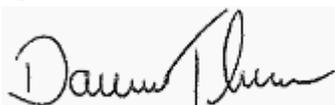
Reported:
 06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005344 - EPA 5035A						Soil						
Blank (1005344-BLK1)						Prepared: 05/21/10 12:26 Analyzed: 05/21/10 14:03						
NWTPH-Gx												
Gasoline Range Organics	ND	2.00	4.00	mg/kg wet	50	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 89 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>94 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (1005344-BS2)						Prepared: 05/21/10 12:26 Analyzed: 05/21/10 13:39						
NWTPH-Gx												
Gasoline Range Organics	23.4	2.00	4.00	mg/kg wet	50	25.0	---	93	70-130%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>98 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (1005344-DUP1)						Prepared: 05/21/10 12:26 Analyzed: 05/21/10 14:51						
QC Source Sample: Other (A10E174-01)												
NWTPH-Gx												
Gasoline Range Organics	9.17	2.71	5.42	mg/kg dry	50	---	6.60	---	---	33	30%	Q-04
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 94 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>99 %</i>		<i>50-150 %</i>		<i>"</i>						

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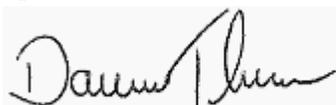
QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005394 - EPA 3546						Soil						
Blank (1005394-BLK1)						Prepared: 05/25/10 10:47 Analyzed: 05/25/10 17:11						C-07
EPA 8082A												
Aroclor 1016	ND	5.00	10.0	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	5.00	10.0	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	5.00	10.0	"	"	---	---	---	---	---	---	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 64 %</i>		<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>						
<i>Decachlorobiphenyl (Surr)</i>		<i>72 %</i>		<i>55-130 %</i>		<i>"</i>						
LCS (1005394-BS1)						Prepared: 05/25/10 10:47 Analyzed: 05/25/10 17:25						C-07
EPA 8082A												
Aroclor 1016	187	5.00	10.0	ug/kg wet	1	250	---	75	40-140%	---	---	
Aroclor 1260	218	5.00	10.0	"	"	"	---	87	60-130%	---	---	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 66 %</i>		<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>						
<i>Decachlorobiphenyl (Surr)</i>		<i>74 %</i>		<i>55-130 %</i>		<i>"</i>						
Duplicate (1005394-DUP1)						Prepared: 05/25/10 10:47 Analyzed: 05/25/10 18:53						C-07
QC Source Sample: MOC-052110-1 (A10E224-01)												
EPA 8082A												
Aroclor 1016	ND	7.67	15.3	ug/kg dry	1	---	ND	---	---		30%	
Aroclor 1221	ND	7.67	15.3	"	"	---	ND	---	---		30%	
Aroclor 1232	ND	7.67	15.3	"	"	---	ND	---	---		30%	
Aroclor 1242	ND	7.67	15.3	"	"	---	ND	---	---		30%	
Aroclor 1248	ND	7.67	15.3	"	"	---	ND	---	---		30%	
Aroclor 1254	29.4	7.67	15.3	"	"	---	22.9	---	---	25	30%	
Aroclor 1260	ND	7.67	15.3	"	"	---	ND	---	---		30%	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 64 %</i>		<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>						
<i>Decachlorobiphenyl (Surr)</i>		<i>82 %</i>		<i>55-130 %</i>		<i>"</i>						
Matrix Spike (1005394-MS2)						Prepared: 05/25/10 10:47 Analyzed: 05/26/10 12:26						C-07
QC Source Sample: Other (A10E237-03RE1)												
EPA 8082A												
Aroclor 1016	221	4.40	8.80	ug/kg dry	1	220	ND	101	40-140%	---	---	
Aroclor 1260	254	4.40	8.80	"	"	"	ND	115	60-130%	---	---	

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Project: **McCall Portland**

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 Project Manager: John Renda

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QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005394 - EPA 3546						Soil						
Matrix Spike (1005394-MS2)						Prepared: 05/25/10 10:47 Analyzed: 05/26/10 12:26						C-07
QC Source Sample: Other (A10E237-03RE1)												
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 72 %</i>		<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>93 %</i>		<i>55-130 %</i>		<i>"</i>					

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Reported:
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QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005427 - EPA 3546/3640A (GPC)						Soil						
Blank (1005427-BLK1)						Prepared: 05/26/10 10:45 Analyzed: 05/27/10 10:36						C-05
EPA 8081B												
Aldrin	ND	0.500	1.70	ug/kg wet	1	---	---	---	---	---	---	
alpha-BHC	ND	0.500	1.70	"	"	---	---	---	---	---	---	
beta-BHC	ND	0.500	1.70	"	"	---	---	---	---	---	---	
delta-BHC	ND	0.500	1.70	"	"	---	---	---	---	---	---	
gamma-BHC (Lindane)	ND	0.500	1.70	"	"	---	---	---	---	---	---	
alpha-Chlordane	ND	0.500	1.70	"	"	---	---	---	---	---	---	
gamma-Chlordane	ND	0.500	1.70	"	"	---	---	---	---	---	---	
4,4'-DDD	ND	0.500	1.70	"	"	---	---	---	---	---	---	
4,4'-DDE	ND	0.500	1.70	"	"	---	---	---	---	---	---	
4,4'-DDT	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Dieldrin	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Endosulfan I	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Endosulfan II	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Endosulfan sulfate	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Endrin	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Endrin Aldehyde	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Endrin ketone	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Heptachlor	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Heptachlor epoxide	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Methoxychlor	ND	5.00	5.00	"	"	---	---	---	---	---	---	
Chlordane (Technical)	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Toxaphene (Total)	ND	10.0	20.0	"	"	---	---	---	---	---	---	
cis-Nonachlor	ND	0.500	1.70	"	"	---	---	---	---	---	---	
2,4'-DDD	ND	0.500	1.70	"	"	---	---	---	---	---	---	
2,4'-DDE	ND	0.500	1.70	"	"	---	---	---	---	---	---	
2,4'-DDT	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Mirex	ND	0.500	1.70	"	"	---	---	---	---	---	---	
Oxychlordane	ND	0.500	1.70	"	"	---	---	---	---	---	---	
trans-Nonachlor	ND	0.500	1.70	"	"	---	---	---	---	---	---	

Surr: 2,4,5,6-TCMX (Surr)

Recovery: 63 % Limits: 50-125 %

Dilution: 1x

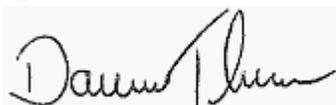
Decachlorobiphenyl (Surr)

97 % 55-130 %

"

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Reported:
06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005427 - EPA 3546/3640A (GPC)						Soil						
LCS (1005427-BS1)						Prepared: 05/26/10 10:45 Analyzed: 05/27/10 10:50						C-05
EPA 8081B												
Aldrin	114	0.500	1.70	ug/kg wet	1	133	---	86	45-140%	---	---	
alpha-BHC	112	0.500	1.70	"	"	"	---	84	60-125%	---	---	
beta-BHC	114	0.500	1.70	"	"	"	---	86	"	---	---	
delta-BHC	131	0.500	1.70	"	"	"	---	99	55-130%	---	---	
gamma-BHC (Lindane)	119	0.500	1.70	"	"	"	---	89	60-125%	---	---	
alpha-Chlordane	126	0.500	1.70	"	"	"	---	95	60-120%	---	---	
gamma-Chlordane	129	0.500	1.70	"	"	"	---	97	65-125%	---	---	
4,4'-DDD	135	0.500	1.70	"	"	"	---	102	30-135%	---	---	
4,4'-DDE	130	0.500	1.70	"	"	"	---	97	70-125%	---	---	
4,4'-DDT	158	0.500	1.70	"	"	"	---	119	45-140%	---	---	
Dieldrin	138	0.500	1.70	"	"	"	---	103	65-125%	---	---	
Endosulfan I	133	0.500	1.70	"	"	"	---	100	15-135%	---	---	
Endosulfan II	134	0.500	1.70	"	"	"	---	100	35-140%	---	---	
Endosulfan sulfate	148	0.500	1.70	"	"	"	---	111	60-135%	---	---	
Endrin	145	0.500	1.70	"	"	"	---	109	"	---	---	
Endrin Aldehyde	140	0.500	1.70	"	"	"	---	105	30-145%	---	---	
Endrin ketone	153	0.500	1.70	"	"	"	---	115	65-135%	---	---	
Heptachlor	122	0.500	1.70	"	"	"	---	92	50-140%	---	---	
Heptachlor epoxide	127	0.500	1.70	"	"	"	---	95	65-130%	---	---	
Methoxychlor	160	5.00	5.00	"	"	"	---	120	55-145%	---	---	

Surr: 2,4,5,6-TCMX (Surr)

Recovery: 68 %

Limits: 50-125 %

Dilution: 1x

Decachlorobiphenyl (Surr)

97 %

55-130 %

"

LCS (1005427-BS2)

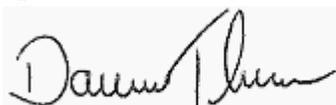
Prepared: 05/26/10 10:45 Analyzed: 05/27/10 11:05

C-05

EPA 8081B												
cis-Nonachlor	164	0.500	1.70	ug/kg wet	1	169	---	97	50-150%	---	---	
2,4'-DDD	155	0.500	1.70	"	"	163	---	95	30-135%	---	---	
2,4'-DDE	151	0.500	1.70	"	"	161	---	94	50-140%	---	---	
2,4'-DDT	210	0.500	1.70	"	"	163	---	129	45-140%	---	---	
Hexachlorobenzene	145	0.500	1.70	"	"	"	---	89	50-150%	---	---	
Hexachlorobutadiene	110	0.500	1.70	"	"	161	---	68	"	---	---	
Mirex	171	0.500	1.70	"	"	173	---	99	"	---	---	
Oxychlorane	150	0.500	1.70	"	"	165	---	91	"	---	---	
trans-Nonachlor	159	0.500	1.70	"	"	164	---	97	"	---	---	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005427 - EPA 3546/3640A (GPC)						Soil						
LCS (1005427-BS2)						Prepared: 05/26/10 10:45 Analyzed: 05/27/10 11:05						C-05
<i>Surr: 2,4,5,6-TCMX (Surr)</i>		Recovery: 70 %		Limits: 50-125 %		Dilution: 1x						
<i>Decachlorobiphenyl (Surr)</i>		97 %		55-130 %		"						
Duplicate (1005427-DUP1)						Prepared: 05/26/10 10:45 Analyzed: 05/27/10 13:15						C-05
QC Source Sample: Other (A10E235-02RE1)												
EPA 8081B												
Aldrin	ND	0.926	3.15	ug/kg dry	1	---	ND	---	---		25%	
alpha-BHC	ND	0.926	3.15	"	"	---	ND	---	---		25%	
beta-BHC	ND	0.926	3.15	"	"	---	ND	---	---		25%	
delta-BHC	ND	0.926	3.15	"	"	---	ND	---	---		25%	
gamma-BHC (Lindane)	ND	0.926	3.15	"	"	---	ND	---	---		25%	
alpha-Chlordane	ND	0.926	3.15	"	"	---	ND	---	---		25%	
gamma-Chlordane	ND	0.926	3.15	"	"	---	ND	---	---		25%	
4,4'-DDD	ND	0.926	3.15	"	"	---	ND	---	---		25%	
4,4'-DDE	5.90	0.926	3.15	"	"	---	4.82	---	---	20	25%	
4,4'-DDT	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Dieldrin	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Endosulfan I	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Endosulfan II	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Endosulfan sulfate	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Endrin	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Endrin Aldehyde	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Endrin ketone	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Heptachlor	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Heptachlor epoxide	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Methoxychlor	ND	9.26	9.26	"	"	---	ND	---	---		25%	
Chlordane (Technical)	ND	18.5	37.0	"	"	---	ND	---	---		25%	
Toxaphene (Total)	ND	18.5	37.0	"	"	---	ND	---	---		25%	
cis-Nonachlor	ND	0.926	3.15	"	"	---	ND	---	---		25%	
2,4'-DDD	ND	0.926	3.15	"	"	---	ND	---	---		25%	
2,4'-DDE	ND	0.926	3.15	"	"	---	ND	---	---		25%	
2,4'-DDT	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Hexachlorobenzene	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Hexachlorobutadiene	ND	0.926	3.15	"	"	---	ND	---	---		25%	
Mirex	ND	0.926	3.15	"	"	---	ND	---	---		25%	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	-----------------	-------	------	--------------	---------------	------	-------------	-----	-----------	-------

Batch 1005427 - EPA 3546/3640A (GPC)

Soil

Duplicate (1005427-DUP1) Prepared: 05/26/10 10:45 Analyzed: 05/27/10 13:15 C-05

QC Source Sample: Other (A10E235-02RE1)

Oxychlorane	ND	0.926	3.15	ug/kg dry	"	---	ND	---	---		25%	
trans-Nonachlor	ND	0.926	3.15	"	"	---	ND	---	---		25%	

Surr: 2,4,5,6-TCMX (Surr) Recovery: 71 % Limits: 50-125 % Dilution: 1x
Decachlorobiphenyl (Surr) 104 % 55-130 % "

Matrix Spike (1005427-MS1)

Prepared: 05/26/10 10:45 Analyzed: 05/27/10 11:34 C-05

QC Source Sample: MOC-052110-1 (A10E224-01RE1)

EPA 8081B

Aldrin	269	5.88	20.0	ug/kg dry	1	314	ND	86	45-140%	---	---	
alpha-BHC	252	5.88	20.0	"	"	"	ND	80	60-125%	---	---	
beta-BHC	277	5.88	20.0	"	"	"	ND	88	"	---	---	
delta-BHC	302	5.88	20.0	"	"	"	ND	96	55-130%	---	---	
gamma-BHC (Lindane)	266	5.88	20.0	"	"	"	ND	85	60-125%	---	---	
alpha-Chlordane	286	5.88	20.0	"	"	"	ND	91	60-120%	---	---	
gamma-Chlordane	292	5.88	20.0	"	"	"	ND	93	65-125%	---	---	
4,4'-DDD	313	5.88	20.0	"	"	"	ND	100	30-135%	---	---	
4,4'-DDE	310	5.88	20.0	"	"	"	ND	99	70-125%	---	---	
4,4'-DDT	429	5.88	20.0	"	"	"	ND	137	45-140%	---	---	
Dieldrin	309	5.88	20.0	"	"	"	ND	98	65-125%	---	---	
Endosulfan I	283	5.88	20.0	"	"	"	ND	90	15-135%	---	---	
Endosulfan II	311	5.88	20.0	"	"	"	ND	99	35-140%	---	---	
Endosulfan sulfate	352	5.88	20.0	"	"	"	7.41	110	60-135%	---	---	
Endrin	336	5.88	20.0	"	"	"	ND	107	"	---	---	
Endrin Aldehyde	330	5.88	20.0	"	"	"	ND	105	35-145%	---	---	
Endrin ketone	364	5.88	20.0	"	"	"	ND	116	65-135%	---	---	
Heptachlor	288	5.88	20.0	"	"	"	ND	92	50-140%	---	---	
Heptachlor epoxide	286	5.88	20.0	"	"	"	ND	91	65-130%	---	---	
Methoxychlor	488	58.8	58.8	"	"	"	ND	155	55-145%	---	---	Q-01

Surr: 2,4,5,6-TCMX (Surr) Recovery: 67 % Limits: 50-125 % Dilution: 1x
Decachlorobiphenyl (Surr) 99 % 55-130 % "

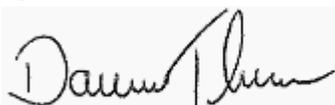
Matrix Spike (1005427-MS2)

Prepared: 05/26/10 15:12 Analyzed: 05/27/10 11:48 C-05

QC Source Sample: MOC-052110-1 (A10E224-01RE1)

EPA 8081B

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005427 - EPA 3546/3640A (GPC)						Soil						
Matrix Spike (1005427-MS2)						Prepared: 05/26/10 15:12 Analyzed: 05/27/10 11:48					C-05	
QC Source Sample: MOC-052110-1 (A10E224-01RE1)												
cis-Nonachlor	425	6.37	21.7	ug/kg dry	1	430	ND	99	50-150%	---	---	
2,4'-DDD	402	6.37	21.7	"	"	416	ND	97	30-135%	---	---	
2,4'-DDE	396	6.37	21.7	"	"	411	ND	96	50-140%	---	---	
2,4'-DDT	569	6.37	21.7	"	"	414	ND	137	45-140%	---	---	
Hexachlorobenzene	337	6.37	21.7	"	"	"	ND	81	50-150%	---	---	
Hexachlorobutadiene	249	6.37	21.7	"	"	409	ND	61	"	---	---	
Mirex	433	6.37	21.7	"	"	442	ND	98	"	---	---	
Oxychlorane	368	6.37	21.7	"	"	421	ND	87	"	---	---	
trans-Nonachlor	396	6.37	21.7	"	"	418	ND	95	"	---	---	

Surr: 2,4,5,6-TCMX (Surr) Recovery: 68 % Limits: 50-125 % Dilution: 1x
 Decachlorobiphenyl (Surr) 107 % 55-130 % "

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005446 - EPA 3546/3640A (GPC)						Soil						
Blank (1005446-BLK1)						Prepared: 05/27/10 09:48 Analyzed: 05/28/10 20:46						C-05
EPA 8270D												
Acenaphthene	ND	10.0	20.0	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Anthracene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Benzo(b+k)fluoranthene(s)	ND	20.0	40.0	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Chrysene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Fluoranthene	10.8	10.0	20.0	"	"	---	---	---	---	---	---	J, B-02
Fluorene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Naphthalene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Phenanthrene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Pyrene	ND	10.0	20.0	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	10.0	20.0	"	"	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	250	500	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	100	200	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	100	200	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	100	200	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	100	200	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	26.8	25.0	50.0	"	"	---	---	---	---	---	---	J, B-02
Di-n-octyl phthalate	ND	100	200	"	"	---	---	---	---	---	---	

Surr: Nitrobenzene-d5 (Surr)	Recovery: 93 %	Limits: 35-120 %	Dilution: 1x
2-Fluorobiphenyl (Surr)	83 %	45-120 %	"
Phenol-d6 (Surr)	87 %	40-120 %	"
p-Terphenyl-d14 (Surr)	111 %	30-125 %	"
2-Fluorophenol (Surr)	80 %	35-120 %	"
2,4,6-Tribromophenol (Surr)	92 %	35-125 %	"

LCS (1005446-BS1)

Prepared: 05/27/10 09:48 Analyzed: 05/28/10 21:21

C-05

EPA 8270D

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005446 - EPA 3546/3640A (GPC)						Soil						
LCS (1005446-BS1)						Prepared: 05/27/10 09:48 Analyzed: 05/28/10 21:21						C-05
Acenaphthene	675	10.0	20.0	ug/kg wet	1	1000	---	68	45-120%	---	---	
Acenaphthylene	694	10.0	20.0	"	"	"	---	69	"	---	---	
Anthracene	877	10.0	20.0	"	"	"	---	88	55-120%	---	---	
Benz(a)anthracene	1110	10.0	20.0	"	"	"	---	111	50-120%	---	---	
Benzo(a)pyrene	1230	10.0	20.0	"	"	"	---	123	"	---	---	Q-29
Benzo(b)fluoranthene	1110	10.0	20.0	"	"	"	---	111	45-120%	---	---	
Benzo(k)fluoranthene	1110	10.0	20.0	"	"	"	---	111	45-125%	---	---	
Benzo(b+k)fluoranthene(s)	2190	20.0	40.0	"	"	2000	---	110	"	---	---	
Benzo(g,h,i)perylene	1070	10.0	20.0	"	"	1000	---	107	40-125%	---	---	
Chrysene	1200	10.0	20.0	"	"	"	---	120	55-120%	---	---	
Dibenz(a,h)anthracene	1160	10.0	20.0	"	"	"	---	116	40-125%	---	---	
Fluoranthene	1060	10.0	20.0	"	"	"	---	106	55-120%	---	---	B, B-02
Fluorene	727	10.0	20.0	"	"	"	---	73	50-120%	---	---	
Indeno(1,2,3-cd)pyrene	1100	10.0	20.0	"	"	"	---	110	40-120%	---	---	
2-Methylnaphthalene	626	10.0	20.0	"	"	"	---	63	45-120%	---	---	
Naphthalene	637	10.0	20.0	"	"	"	---	64	40-120%	---	---	
Phenanthrene	855	10.0	20.0	"	"	"	---	86	50-120%	---	---	
Pyrene	1280	10.0	20.0	"	"	"	---	128	45-120%	---	---	Q-29
Dibenzofuran	682	10.0	20.0	"	"	"	---	68	50-120%	---	---	
3+4-Methylphenol(s)	765	250	500	"	"	"	---	77	40-120%	---	---	
Bis(2-ethylhexyl)phthalate	1380	100	200	"	"	"	---	138	45-125%	---	---	Q-29
Butyl benzyl phthalate	1370	100	200	"	"	"	---	137	50-125%	---	---	Q-29
Diethylphthalate	929	100	200	"	"	"	---	93	50-120%	---	---	
Dimethylphthalate	849	100	200	"	"	"	---	85	"	---	---	
Di-n-butylphthalate	1260	25.0	50.0	"	"	"	---	126	55-120%	---	---	B, Q-29
Di-n-octyl phthalate	1350	100	200	"	"	"	---	135	40-130%	---	---	Q-29

Surr: Nitrobenzene-d5 (Surr)	Recovery: 67 %	Limits: 35-120 %	Dilution: 1x
2-Fluorobiphenyl (Surr)	61 %	45-120 %	"
Phenol-d6 (Surr)	63 %	40-120 %	"
p-Terphenyl-d14 (Surr)	126 %	30-125 %	"
2-Fluorophenol (Surr)	58 %	35-120 %	"
2,4,6-Tribromophenol (Surr)	89 %	35-125 %	"

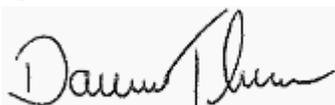
Duplicate (1005446-DUP1)

Prepared: 05/27/10 09:48 Analyzed: 05/31/10 14:18

C-05

QC Source Sample: MOC-052110-1 (A10E224-01RE1)

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Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

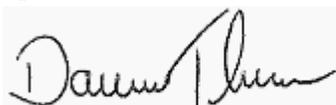
Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005446 - EPA 3546/3640A (GPC)						Soil						
Duplicate (1005446-DUP1)						Prepared: 05/27/10 09:48 Analyzed: 05/31/10 14:18					C-05	
QC Source Sample: MOC-052110-1 (A10E224-01RE1)												
EPA 8270D												
Acenaphthene	443	202	403	ug/kg dry	1	---	481	---	---	8	30%	
Acenaphthylene	ND	202	403	"	"	---	ND	---	---		30%	
Anthracene	699	202	403	"	"	---	809	---	---	15	30%	
Benz(a)anthracene	2020	202	403	"	"	---	1780	---	---	13	30%	
Benzo(a)pyrene	2700	202	403	"	"	---	2600	---	---	4	30%	Q-29, M-02
Benzo(b)fluoranthene	3250	202	403	"	"	---	3080	---	---	5	30%	
Benzo(k)fluoranthene	1130	202	403	"	"	---	1050	---	---	7	30%	
Benzo(b+k)fluoranthene(s)	4880	403	806	"	"	---	4510	---	---	8	30%	
Benzo(g,h,i)perylene	1910	202	403	"	"	---	1530	---	---	22	30%	
Chrysene	2420	202	403	"	"	---	2100	---	---	14	30%	
Dibenz(a,h)anthracene	299	202	403	"	"	---	270	---	---	10	30%	J
Fluoranthene	5770	202	403	"	"	---	5380	---	---	7	30%	B, Q-29
Fluorene	304	202	403	"	"	---	337	---	---	11	30%	J
Indeno(1,2,3-cd)pyrene	1740	202	403	"	"	---	1450	---	---	18	30%	
2-Methylnaphthalene	ND	202	403	"	"	---	ND	---	---		30%	
Naphthalene	ND	202	403	"	"	---	295	---	---		30%	
Phenanthrene	3480	202	403	"	"	---	3840	---	---	10	30%	
Pyrene	4840	202	403	"	"	---	4520	---	---	7	30%	Q-29
Dibenzofuran	213	202	403	"	"	---	275	---	---	26	30%	J
3+4-Methylphenol(s)	ND	5040	10100	"	"	---	ND	---	---		30%	
Bis(2-ethylhexyl)phthalate	7330	2020	4030	"	"	---	5100	---	---	36	30%	Q-05, Q-23, Q-29
Butyl benzyl phthalate	3260	2020	4030	"	"	---	2210	---	---	38	30%	J, Q-05, Q-29
Diethylphthalate	ND	2020	4030	"	"	---	ND	---	---		30%	
Dimethylphthalate	ND	2020	4030	"	"	---	ND	---	---		30%	
Di-n-butylphthalate	648	504	1010	"	"	---	542	---	---	18	30%	J, B, B-02, Q-29
Di-n-octyl phthalate	ND	3020	4030	"	"	---	2860	---	---		30%	Q-29

Surr: Nitrobenzene-d5 (Surr)	Recovery: 49 %	Limits: 35-120 %	Dilution: 1x
2-Fluorobiphenyl (Surr)	52 %	45-120 %	"
Phenol-d6 (Surr)	51 %	40-120 %	"
p-Terphenyl-d14 (Surr)	108 %	30-125 %	"
2-Fluorophenol (Surr)	37 %	35-120 %	"
2,4,6-Tribromophenol (Surr)	94 %	35-125 %	"

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

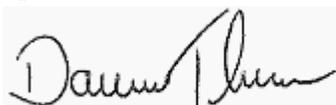
Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005446 - EPA 3546/3640A (GPC)						Soil						
Matrix Spike (1005446-MS1)						Prepared: 05/27/10 09:48 Analyzed: 05/31/10 15:29						C-05
QC Source Sample: MOC-052110-4 (A10E224-04RE1)												
EPA 8270D												
Acenaphthene	1110	148	296	ug/kg dry	1	1480	ND	75	45-120%	---	---	
Acenaphthylene	1140	148	296	"	"	"	ND	77	"	---	---	
Anthracene	1340	148	296	"	"	"	ND	91	55-120%	---	---	
Benz(a)anthracene	1810	148	296	"	"	"	ND	123	50-120%	---	---	Q-01
Benzo(a)pyrene	2170	148	296	"	"	"	385	120	"	---	---	
Benzo(b)fluoranthene	2140	148	296	"	"	"	ND	145	45-120%	---	---	Q-01
Benzo(k)fluoranthene	1890	148	296	"	"	"	ND	128	45-125%	---	---	Q-01
Benzo(b+k)fluoranthene(s)	4320	296	591	"	"	2960	ND	146	"	---	---	Q-01
Benzo(g,h,i)perylene	1610	148	296	"	"	1480	ND	109	40-125%	---	---	EST
Chrysene	2020	148	296	"	"	"	595	96	55-120%	---	---	
Dibenz(a,h)anthracene	1710	148	296	"	"	"	ND	116	40-125%	---	---	EST
Fluoranthene	1640	148	296	"	"	"	ND	111	55-120%	---	---	B, B-02
Fluorene	1130	148	296	"	"	"	ND	77	50-120%	---	---	
Indeno(1,2,3-cd)pyrene	1770	148	296	"	"	"	ND	120	40-120%	---	---	EST
2-Methylnaphthalene	1090	148	296	"	"	"	ND	74	45-120%	---	---	
Naphthalene	1120	148	296	"	"	"	ND	76	40-120%	---	---	
Phenanthrene	1410	148	296	"	"	"	ND	95	50-120%	---	---	
Pyrene	1710	148	296	"	"	"	ND	115	45-120%	---	---	Q-29
Dibenzofuran	1110	148	296	"	"	"	ND	75	50-120%	---	---	
3+4-Methylphenol(s)	ND	3700	7390	"	"	"	ND		40-120%	---	---	
Bis(2-ethylhexyl)phthalate	5300	1480	2960	"	"	"	3260	138	45-125%	---	---	Q-01, Q-23, Q-29
Butyl benzyl phthalate	2800	1480	2960	"	"	"	ND	190	50-125%	---	---	J, Q-01, Q-29
Diethylphthalate	ND	1480	2960	"	"	"	ND		50-120%	---	---	
Dimethylphthalate	ND	1480	2960	"	"	"	ND		"	---	---	
Di-n-butylphthalate	2100	370	739	"	"	"	ND	142	55-120%	---	---	B, Q-01, Q-29
Di-n-octyl phthalate	3840	1480	2960	"	"	"	3890	-3	40-130%	---	---	Q-01, Q-23, Q-29

Surr: Nitrobenzene-d5 (Surr)	Recovery: 65 %	Limits: 35-120 %	Dilution: 1x
2-Fluorobiphenyl (Surr)	69 %	45-120 %	"
Phenol-d6 (Surr)	68 %	40-120 %	"
p-Terphenyl-d14 (Surr)	110 %	30-125 %	"
2-Fluorophenol (Surr)	56 %	35-120 %	"

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**

Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005446 - EPA 3546/3640A (GPC)						Soil						
Matrix Spike (1005446-MS1)						Prepared: 05/27/10 09:48 Analyzed: 05/31/10 15:29						C-05
QC Source Sample: MOC-052110-4 (A10E224-04RE1)												
Surr: 2,4,6-Tribromophenol (Surr)			Recovery: 107 %		Limits: 35-125 %		Dilution: 1x					

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Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/16/10 12:08

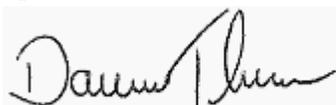
QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006009 - EPA 3051A						Sediment						
Blank (1006009-BLK1)						Prepared: 06/01/10 11:37 Analyzed: 06/02/10 18:53						
EPA 6020												
Arsenic	ND	0.0800	0.500	mg/kg wet	5	---	---	---	---	---	---	---
Cadmium	ND	0.0400	0.400	"	"	---	---	---	---	---	---	---
Chromium	ND	0.0450	0.500	"	"	---	---	---	---	---	---	---
Copper	ND	0.0550	0.450	"	"	---	---	---	---	---	---	---
Lead	ND	0.0250	0.500	"	"	---	---	---	---	---	---	---
Zinc	ND	0.305	1.00	"	"	---	---	---	---	---	---	---
LCS (1006009-BS1)						Prepared: 06/01/10 11:37 Analyzed: 06/02/10 17:18						
EPA 6020												
Arsenic	23.1	0.0800	0.500	mg/kg wet	5	25.0	---	92	80-120%	---	---	---
Cadmium	23.1	0.0400	0.400	"	"	"	---	93	"	---	---	---
Chromium	22.4	0.0450	0.500	"	"	"	---	90	"	---	---	---
Copper	25.2	0.0550	0.450	"	"	"	---	101	"	---	---	---
Lead	23.5	0.0250	0.500	"	"	"	---	94	"	---	---	---
Zinc	23.0	0.305	1.00	"	"	"	---	92	"	---	---	---
Duplicate (1006009-DUP1)						Prepared: 06/01/10 11:37 Analyzed: 06/02/10 18:09						
QC Source Sample: MOC-052110-4 (A10E224-04)												
EPA 6020												
Arsenic	2.76	0.118	0.735	mg/kg dry	5	---	3.03	---	---	9	40%	---
Cadmium	1.36	0.0588	0.588	"	"	---	0.987	---	---	32	40%	---
Chromium	25.2	0.0661	0.735	"	"	---	25.1	---	---	0.7	40%	---
Copper	72.3	0.0808	0.661	"	"	---	79.9	---	---	10	40%	---
Lead	29.7	0.0367	0.735	"	"	---	28.1	---	---	5	40%	---
Zinc	318	0.448	1.47	"	"	---	314	---	---	1	40%	---
Matrix Spike (1006009-MS1)						Prepared: 06/01/10 11:37 Analyzed: 06/02/10 18:12						
QC Source Sample: MOC-052110-4 (A10E224-04)												
EPA 6020												
Arsenic	35.0	0.113	0.706	mg/kg dry	5	35.3	3.03	91	75-125%	---	---	---
Cadmium	34.9	0.0565	0.565	"	"	"	0.987	96	"	---	---	---
Chromium	56.4	0.0635	0.706	"	"	"	25.1	89	"	---	---	---
Copper	120	0.0777	0.635	"	"	"	79.9	113	"	---	---	---
Lead	59.4	0.0353	0.706	"	"	"	28.1	88	"	---	---	---
Zinc	348	0.431	1.41	"	"	"	314	96	"	---	---	---

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland

Project: **McCall Portland**

6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006009 - EPA 3051A							Sediment					

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Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005457 - PSEP TOC						Soil						
Blank (1005457-BLK1)						Prepared: 05/28/10 11:45 Analyzed: 05/30/10 16:15						
SM 5310B MOD												
Total Organic Carbon	ND	100	200	mg/kg	1	---	---	---	---	---	---	---
LCS (1005457-BS1)						Prepared: 05/28/10 11:45 Analyzed: 05/30/10 16:15						
SM 5310B MOD												
Total Organic Carbon	9200			mg/kg	1	10000	---	92	85-115%	---	---	---
LCS (1005457-BS2)						Prepared: 05/28/10 11:45 Analyzed: 05/30/10 16:15						
SM 5310B MOD												
Total Organic Carbon	11000			mg/kg	1	10000	---	110	85-115%	---	---	---
Duplicate (1005457-DUP1)						Prepared: 05/28/10 11:45 Analyzed: 05/30/10 16:15						
QC Source Sample: Other (A10D191-46)												
SM 5310B MOD												
Total Organic Carbon	6280	100	200	mg/kg	1	---	6000	---	---	5	20%	---

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Reported:
 06/16/10 12:08

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight by D2216

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005396 - Dry Weight						Soil						
Duplicate (1005396-DUP1)						Prepared: 05/25/10 10:50 Analyzed: 05/26/10 09:43						
QC Source Sample: Other (A10D191-48)												
Apex SOP												
% Solids	98.9	1.00	1.00	% by Weight	1	---	98.9	---	---	0	20%	
Duplicate (1005396-DUP2)						Prepared: 05/25/10 13:39 Analyzed: 05/26/10 09:43						
QC Source Sample: Other (A10E234-05)												
Apex SOP												
% Solids	97.9	1.00	1.00	% by Weight	1	---	98.1	---	---	0.2	20%	
Duplicate (1005396-DUP3)						Prepared: 05/25/10 13:42 Analyzed: 05/26/10 09:43						
QC Source Sample: Other (A10E235-04)												
Apex SOP												
% Solids	77.2	1.00	1.00	% by Weight	1	---	76.3	---	---	1	20%	
Duplicate (1005396-DUP4)						Prepared: 05/25/10 13:42 Analyzed: 05/26/10 09:43						
QC Source Sample: Other (A10E238-01)												
Apex SOP												
% Solids	69.0	1.00	1.00	% by Weight	1	---	68.1	---	---	1	20%	

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Reported:
06/16/10 12:08

SAMPLE PREPARATION INFORMATION

Diesel Range (C10-C22) and Oil Range (C22-C40) Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005419							
A10E224-01	Sediment	NWTPH-Dx	05/21/10 10:00	05/26/10 12:55	10.36g/5mL	15g/5mL	1.45
A10E224-02	Sediment	NWTPH-Dx	05/21/10 11:45	05/26/10 12:55	10.28g/5mL	15g/5mL	1.46
A10E224-03	Sediment	NWTPH-Dx	05/21/10 12:30	05/26/10 12:55	10.25g/5mL	15g/5mL	1.46
A10E224-04RE1	Sediment	NWTPH-Dx	05/21/10 15:00	05/26/10 12:55	10.65g/10mL	15g/5mL	2.82

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005344							
A10E224-01	Sediment	NWTPH-Gx	05/21/10 10:00	05/21/10 16:45	12.712g/10mL	10g/10mL	0.79
A10E224-02	Sediment	NWTPH-Gx	05/21/10 11:45	05/21/10 16:45	12.2g/10mL	10g/10mL	0.82
A10E224-03	Sediment	NWTPH-Gx	05/21/10 12:30	05/21/10 16:45	11.941g/10mL	10g/10mL	0.84
A10E224-04	Sediment	NWTPH-Gx	05/21/10 15:00	05/21/10 16:45	12.774g/10mL	10g/10mL	0.78

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005394							
A10E224-01	Sediment	EPA 8082A	05/21/10 10:00	05/25/10 10:47	13.55g/5mL	10g/5mL	0.74
A10E224-02	Sediment	EPA 8082A	05/21/10 11:45	05/25/10 10:47	10.96g/5mL	10g/5mL	0.91
A10E224-03	Sediment	EPA 8082A	05/21/10 12:30	05/25/10 10:47	12.13g/5mL	10g/5mL	0.82
A10E224-04	Sediment	EPA 8082A	05/21/10 15:00	05/25/10 10:47	14.2g/5mL	10g/5mL	0.70

Organochlorine Pesticides by EPA 8081B

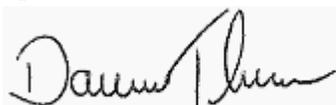
Prep: EPA 3546/3640A (GPC)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005427							
A10E224-01RE1	Sediment	EPA 8081B	05/21/10 10:00	05/26/10 10:45	13.14g/25mL	15g/5mL	5.71
A10E224-02RE1	Sediment	EPA 8081B	05/21/10 11:45	05/26/10 10:45	10.19g/25mL	15g/5mL	7.36
A10E224-03RE1	Sediment	EPA 8081B	05/21/10 12:30	05/26/10 10:45	12.07g/25mL	15g/5mL	6.21
A10E224-04RE1	Sediment	EPA 8081B	05/21/10 15:00	05/26/10 10:45	10.74g/50mL	15g/5mL	14.00

Semivolatile Organic Compounds by EPA 8270D

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3546/3640A (GPC)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005446							
A10E224-01RE1	Sediment	EPA 8270D	05/21/10 10:00	05/27/10 09:48	10.04g/100mL	10g/5mL	19.90
A10E224-02RE1	Sediment	EPA 8270D	05/21/10 11:45	05/27/10 09:48	10.13g/100mL	10g/5mL	19.70
A10E224-02RE2	Sediment	EPA 8270D	05/21/10 11:45	05/27/10 09:48	10.13g/100mL	10g/5mL	19.70
A10E224-03RE1	Sediment	EPA 8270D	05/21/10 12:30	05/27/10 09:48	10.09g/100mL	10g/5mL	19.80
A10E224-04RE1	Sediment	EPA 8270D	05/21/10 15:00	05/27/10 09:48	10.21g/100mL	10g/5mL	19.60
A10E224-04RE2	Sediment	EPA 8270D	05/21/10 15:00	05/27/10 09:48	10.21g/100mL	10g/5mL	19.60

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

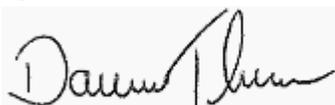
Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006009							
A10E224-01	Sediment	EPA 6020	05/21/10 10:00	06/01/10 11:37	0.486g/50mL	0.5g/50mL	1.03
A10E224-02	Sediment	EPA 6020	05/21/10 11:45	06/01/10 11:37	0.481g/50mL	0.5g/50mL	1.04
A10E224-03	Sediment	EPA 6020	05/21/10 12:30	06/01/10 11:37	0.492g/50mL	0.5g/50mL	1.02
A10E224-04	Sediment	EPA 6020	05/21/10 15:00	06/01/10 11:37	0.497g/50mL	0.5g/50mL	1.01

Conventional Chemistry Parameters

Prep: PSEP TOC

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005457							
A10E224-01	Sediment	SM 5310B MOD	05/21/10 10:00	05/28/10 11:45	5g/5g	5g/5mL	NA
A10E224-02	Sediment	SM 5310B MOD	05/21/10 11:45	05/28/10 11:45	5g/5g	5g/5mL	NA
A10E224-03RE1	Sediment	SM 5310B MOD	05/21/10 12:30	05/28/10 11:45	5g/5g	5g/5mL	NA
A10E224-04	Sediment	SM 5310B MOD	05/21/10 15:00	05/28/10 11:45	5g/5g	5g/5mL	NA

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Project: **McCall Portland**

Project Number: No
Project Manager: John Renda

Reported:

06/16/10 12:08

Notes and Definitions

Qualifiers:

- B Analyte detected in an associated blank at a level above the MRL. (See Notes and Conventions below.)
- B-02 Analyte detected in an associated blank at a level between one-half the MRL and the MRL. (See Notes and Conventions below.)
- C-05 Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Sample Final Volume includes the GPC dilution factor.
- C-07 Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- EST Result reported as an Estimated Value. Internal Standard failed low due to matrix. Associated compounds are reported as Estimated Results.
- ESTa Result reported as an Estimated Value. TOC concentration above measurement system capability.
- F-07 Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
- J Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
- M-02 Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
- Q-01 Percent recovery and/or RPD is outside acceptance limits.
- Q-04 Percent recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
- Q-05 Analyses are not controlled on RPD values from sample or duplicate concentrations near or below the reporting level.
- Q-06 Internal Standard area outside of 50-200% limits. Data Not Reported.
- Q-23 Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Data is likely biased high.
- Q-29 Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
- Q-34 Matrix spike analysis was performed on this sample. Recovery of one or more analytes is outside control limits. (Refer to the QC Section of Analytical Report.)
- R-01 The Reporting Limit for this analyte has been raised to account for matrix interference.
- R-04 Reporting levels elevated due to dilution necessary for analysis.
- S-01 Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
- S-05 Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
- S-06 Surrogate recovery is outside of established control limits.
- V-06 Sample aliquot was subsampled from a soil jar with minimal headspace. The subsampled aliquot was preserved in methanol within 48 hours of sampling.
- V-10 Sample aliquot was subsampled from a soil jar with significant headspace. The subsampled aliquot was preserved in methanol within 48 hours of sampling. Results may contain a low bias.

Notes and Conventions:

DET Analyte DETECTED

Apex Laboratories



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Reported:
06/16/10 12:08

ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
RPD Relative Percent Difference
MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

Apex Laboratories



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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/16/10 12:08

APEX LABS COOLER RECEIPT FORM

Client: Anchor Element WO#: A10 E224

Project/Project #: McCall - Front Ave

Delivery info:

Date/Time Received: 5/21/10 @ 1615 By: Kendra

Delivered by: Apex Courier Client FedEx UPS DHL Other

Courier/Client Name or Air Bill # _____

Cooler Inspection Inspected by: Kendra 5/21 @ 1615

Chain of Custody:

Included? Yes No Signed/Dated by Client? Yes No

Signed/Dated by Apex Personnel? Yes No

Coolers: No. of Coolers: 1

	Cooler #1	Cooler #2	Cooler #3	Cooler #4
Temperature (deg. C)	<u>9.9</u>	_____	_____	_____
Received on Ice? (Y/N)	<u>(Y/N)</u>	_____	_____	_____
Temp. Blanks? (Y/N)	<u>(Y/N)</u>	_____	_____	_____
Ice Type: (Gel/Real/Other)	<u>(Real)</u>	_____	_____	_____
Condition:	<u>good</u>	_____	_____	_____

Samples Inspection: Inspected by: Ludmy Meran @ 1623

All Samples Intact? Yes No Comments: _____

Bottle Labels/COCs agree? Yes No Comments: Sample MOC-052110-1 (COC) reads MOC-052110 on label

Containers Appropriate for Analysis? Yes No Comments: _____

Do VOA Vials have Visible Headspace? Yes No NA

Comments: _____

Water Samples: pH Checked and Appropriate (except VOAs): Yes No NA

Comments: _____

Additional Information:

1/4 MOC-052110-4 sample time on label reads 1530
 Col reads 1500-



Sunday, June 20, 2010

John Renda
Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

RE: McCall Portland / No

Enclosed are the results of analyses for work order A10E258, which was received by the laboratory on 5/26/2010 at 11:39:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: dthomas@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MOC-052510-1	A10E258-01	Water	05/25/10 16:10	05/26/10 11:39
MOC-052510-2	A10E258-02	Water	05/25/10 16:25	05/26/10 11:39
MOC-052510-3	A10E258-03	Water	05/25/10 16:35	05/26/10 11:39
MOC-052510-4	A10E258-04	Water	05/25/10 16:40	05/26/10 11:39

Apex Laboratories



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Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

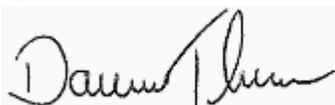
Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Diesel Range (C10-C22) and Oil Range (C22-C40) Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit						
MOC-052510-1 (A10E258-01) S-3			Matrix: Water		Batch: 1005451				
Diesel Range Organics	0.291	0.0385	0.0769		mg/L	1	05/28/10 23:49	NWTPH-Dx	F-05
Oil Range Organics	0.577	0.0769	0.192		"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>				
MOC-052510-2 (A10E258-02) S-2			Matrix: Water		Batch: 1005451				
Diesel Range Organics	0.238	0.0379	0.0758		mg/L	1	05/29/10 00:13	NWTPH-Dx	F-05
Oil Range Organics	0.800	0.0758	0.190		"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>				
MOC-052510-3 (A10E258-03) S-1			Matrix: Water		Batch: 1005451				
Diesel Range Organics	0.217	0.0379	0.0758		mg/L	1	05/29/10 01:00	NWTPH-Dx	F-05
Oil Range Organics	0.576	0.0758	0.190		"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>				
MOC-052510-4 (A10E258-04) S-4			Matrix: Water		Batch: 1005451				
Diesel Range Organics	0.400	0.0376	0.0751		mg/L	1	05/29/10 01:23	NWTPH-Dx	F-04
Oil Range Organics	0.610	0.0751	0.188		"	"	"	"	F-04
<i>Surrogate: o-Terphenyl (Surr)</i>			<i>Recovery: 106 %</i>		<i>Limits: 50-150 %</i>				

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit						
MOC-052510-1 (A10E258-01) S-3			Matrix: Water		Batch: 1005415				
Gasoline Range Organics	ND	0.0500	0.100		mg/L	1	05/26/10 15:23	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 80 %</i>		<i>Limits: 50-150 %</i>		"	"	"
<i>1,4-Difluorobenzene (Sur)</i>			<i>97 %</i>		<i>Limits: 50-150 %</i>		"	"	"
MOC-052510-2 (A10E258-02) S-2			Matrix: Water		Batch: 1005415				
Gasoline Range Organics	ND	0.0500	0.100		mg/L	1	05/26/10 15:49	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 80 %</i>		<i>Limits: 50-150 %</i>		"	"	"
<i>1,4-Difluorobenzene (Sur)</i>			<i>97 %</i>		<i>Limits: 50-150 %</i>		"	"	"
MOC-052510-3 (A10E258-03) S-1			Matrix: Water		Batch: 1005415				
Gasoline Range Organics	ND	0.0500	0.100		mg/L	1	05/26/10 16:16	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 81 %</i>		<i>Limits: 50-150 %</i>		"	"	"
<i>1,4-Difluorobenzene (Sur)</i>			<i>98 %</i>		<i>Limits: 50-150 %</i>		"	"	"
MOC-052510-4 (A10E258-04) S-4			Matrix: Water		Batch: 1005415				
Gasoline Range Organics	ND	0.0500	0.100		mg/L	1	05/26/10 16:42	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 78 %</i>		<i>Limits: 50-150 %</i>		"	"	"
<i>1,4-Difluorobenzene (Sur)</i>			<i>98 %</i>		<i>Limits: 50-150 %</i>		"	"	"

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

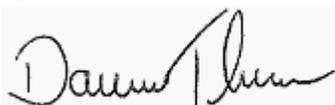
Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit						
MOC-052510-1 (A10E258-01) S-3		Matrix: Water			Batch: 1005449				C-07
Aroclor 1016	ND	0.0118	0.0235		ug/L	1	06/01/10 10:13	EPA 8082A	
Aroclor 1221	ND	0.0118	0.0235		"	"	"	"	
Aroclor 1232	ND	0.0118	0.0235		"	"	"	"	
Aroclor 1242	ND	0.0118	0.0235		"	"	"	"	
Aroclor 1248	ND	0.0118	0.0235		"	"	"	"	
Aroclor 1254	ND	0.0118	0.0235		"	"	"	"	
Aroclor 1260	ND	0.0118	0.0235		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 71 %</i>		<i>Limits: 50-125 %</i>					
<i>Decachlorobiphenyl (Surr)</i>		<i>99 %</i>		<i>Limits: 55-130 %</i>					
MOC-052510-2 (A10E258-02) S-2		Matrix: Water			Batch: 1005449				C-07
Aroclor 1016	ND	0.0109	0.0217		ug/L	1	06/01/10 10:28	EPA 8082A	
Aroclor 1221	ND	0.0109	0.0217		"	"	"	"	
Aroclor 1232	ND	0.0109	0.0217		"	"	"	"	
Aroclor 1242	ND	0.0109	0.0217		"	"	"	"	
Aroclor 1248	ND	0.0109	0.0217		"	"	"	"	
Aroclor 1254	ND	0.0109	0.0217		"	"	"	"	
Aroclor 1260	ND	0.0109	0.0217		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 73 %</i>		<i>Limits: 50-125 %</i>					
<i>Decachlorobiphenyl (Surr)</i>		<i>105 %</i>		<i>Limits: 55-130 %</i>					
MOC-052510-3 (A10E258-03) S-1		Matrix: Water			Batch: 1005449				C-07
Aroclor 1016	ND	0.0111	0.0222		ug/L	1	06/01/10 10:43	EPA 8082A	
Aroclor 1221	ND	0.0111	0.0222		"	"	"	"	
Aroclor 1232	ND	0.0111	0.0222		"	"	"	"	
Aroclor 1242	ND	0.0111	0.0222		"	"	"	"	
Aroclor 1248	ND	0.0111	0.0222		"	"	"	"	
Aroclor 1254	ND	0.0111	0.0222		"	"	"	"	
Aroclor 1260	ND	0.0111	0.0222		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 78 %</i>		<i>Limits: 50-125 %</i>					
<i>Decachlorobiphenyl (Surr)</i>		<i>94 %</i>		<i>Limits: 55-130 %</i>					
MOC-052510-4 (A10E258-04) S-4		Matrix: Water			Batch: 1005449				C-07
Aroclor 1016	ND	0.0108	0.0215		ug/L	1	06/01/10 11:27	EPA 8082A	
Aroclor 1221	ND	0.0108	0.0215		"	"	"	"	
Aroclor 1232	ND	0.0108	0.0215		"	"	"	"	
Aroclor 1242	ND	0.0108	0.0215		"	"	"	"	
Aroclor 1248	ND	0.0108	0.0215		"	"	"	"	
Aroclor 1254	ND	0.0108	0.0215		"	"	"	"	

Apex Laboratories



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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MOC-052510-4 (A10E258-04)			Matrix: Water		Batch: 1005449			C-07
Aroclor 1260	ND	0.0108	0.0215	ug/L	1	"	EPA 8082A	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 75 %</i>	<i>Limits: 50-125 %</i>	"	"	"	
<i>Decachlorobiphenyl (Surr)</i>			<i>99 %</i>	<i>Limits: 55-130 %</i>	"	"	"	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-052510-1 (A10E258-01RE1) S-3			Matrix: Water			Batch: 1005430			C-05
Aldrin	ND	0.00948	0.0284		ug/L	1	05/28/10 14:25	EPA 8081B	
alpha-BHC	ND	0.00948	0.0284		"	"	"	"	
beta-BHC	ND	0.0284	0.0284		"	"	"	"	
delta-BHC	ND	0.00948	0.0284		"	"	"	"	
gamma-BHC (Lindane)	ND	0.00948	0.0284		"	"	"	"	
alpha-Chlordane	ND	0.00948	0.0284		"	"	"	"	
gamma-Chlordane	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDT	ND	0.0284	0.0284		"	"	"	"	
Dieldrin	ND	0.00948	0.0284		"	"	"	"	
Endosulfan I	ND	0.00948	0.0284		"	"	"	"	
Endosulfan II	ND	0.00948	0.0284		"	"	"	"	
Endosulfan sulfate	ND	0.00948	0.0284		"	"	"	"	
Endrin	ND	0.00948	0.0284		"	"	"	"	
Endrin Aldehyde	ND	0.00948	0.0284		"	"	"	"	
Endrin ketone	ND	0.00948	0.0284		"	"	"	"	
Heptachlor	ND	0.00948	0.0284		"	"	"	"	
Heptachlor epoxide	ND	0.00948	0.0284		"	"	"	"	
Methoxychlor	ND	0.00948	0.0758		"	"	"	"	
Chlordane (Technical)	ND	0.0948	0.355		"	"	"	"	
Toxaphene (Total)	ND	0.0948	0.948		"	"	"	"	
cis-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDT	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobenzene	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobutadiene	ND	0.00948	0.0284		"	"	"	"	Q-30
Mirex	ND	0.00948	0.0284		"	"	"	"	
Oxychlordane	ND	0.00948	0.0284		"	"	"	"	
trans-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 63 %</i>	<i>Limits: 50-125 %</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>123 %</i>	<i>Limits: 55-130 %</i>					

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6650 SW Redwood Lane Ste. 333
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Project: **McCall Portland**
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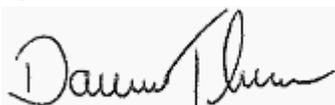
Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-052510-2 (A10E258-02RE1)	S-2			Water		Batch: 1005430			C-05
Aldrin	ND	0.00948	0.0284		ug/L	1	05/28/10 14:53	EPA 8081B	
alpha-BHC	ND	0.00948	0.0284		"	"	"	"	
beta-BHC	ND	0.0284	0.0284		"	"	"	"	
delta-BHC	0.0470	0.00948	0.0284		"	"	"	"	
gamma-BHC (Lindane)	ND	0.00948	0.0284		"	"	"	"	
alpha-Chlordane	ND	0.00948	0.0284		"	"	"	"	
gamma-Chlordane	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDT	ND	0.0379	0.0379		"	"	"	"	R-01
Dieldrin	ND	0.00948	0.0284		"	"	"	"	
Endosulfan I	ND	0.00948	0.0284		"	"	"	"	
Endosulfan II	ND	0.00948	0.0284		"	"	"	"	
Endosulfan sulfate	ND	0.00948	0.0284		"	"	"	"	
Endrin	ND	0.00948	0.0284		"	"	"	"	
Endrin Aldehyde	ND	0.00948	0.0284		"	"	"	"	
Endrin ketone	ND	0.00948	0.0284		"	"	"	"	
Heptachlor	ND	0.00948	0.0284		"	"	"	"	
Heptachlor epoxide	ND	0.00948	0.0284		"	"	"	"	
Methoxychlor	ND	0.00948	0.0758		"	"	"	"	
Chlordane (Technical)	ND	0.0948	0.355		"	"	"	"	
Toxaphene (Total)	ND	0.0948	0.948		"	"	"	"	
cis-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDT	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobenzene	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobutadiene	ND	0.00948	0.0284		"	"	"	"	Q-30
Mirex	ND	0.00948	0.0284		"	"	"	"	
Oxychlordane	ND	0.00948	0.0284		"	"	"	"	
trans-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 62 %</i>		<i>Limits: 50-125 %</i>		"	"	"	
<i>Decachlorobiphenyl (Surr)</i>		<i>111 %</i>		<i>Limits: 55-130 %</i>		"	"	"	

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Project Number: No
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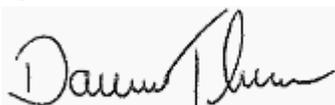
Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-052510-3 (A10E258-03RE1) S-1			Matrix: Water			Batch: 1005430			C-05
Aldrin	ND	0.00948	0.0284		ug/L	1	05/28/10 15:08	EPA 8081B	
alpha-BHC	ND	0.00948	0.0284		"	"	"	"	
beta-BHC	ND	0.00948	0.0284		"	"	"	"	
delta-BHC	ND	0.0284	0.0284		"	"	"	"	
gamma-BHC (Lindane)	ND	0.00948	0.0284		"	"	"	"	
alpha-Chlordane	ND	0.00948	0.0284		"	"	"	"	
gamma-Chlordane	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDT	ND	0.00948	0.0284		"	"	"	"	
Dieldrin	ND	0.00948	0.0284		"	"	"	"	
Endosulfan I	ND	0.00948	0.0284		"	"	"	"	
Endosulfan II	ND	0.00948	0.0284		"	"	"	"	
Endosulfan sulfate	ND	0.00948	0.0284		"	"	"	"	
Endrin	ND	0.00948	0.0284		"	"	"	"	
Endrin Aldehyde	ND	0.00948	0.0284		"	"	"	"	
Endrin ketone	ND	0.00948	0.0284		"	"	"	"	
Heptachlor	ND	0.00948	0.0284		"	"	"	"	
Heptachlor epoxide	ND	0.00948	0.0284		"	"	"	"	
Methoxychlor	ND	0.00948	0.0758		"	"	"	"	
Chlordane (Technical)	ND	0.0948	0.355		"	"	"	"	
Toxaphene (Total)	ND	0.0948	0.948		"	"	"	"	
cis-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDT	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobenzene	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobutadiene	ND	0.00948	0.0284		"	"	"	"	Q-30
Mirex	ND	0.00948	0.0284		"	"	"	"	
Oxychlordane	ND	0.00948	0.0284		"	"	"	"	
trans-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 66 %</i>	<i>Limits: 50-125 %</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>110 %</i>	<i>Limits: 55-130 %</i>					

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-052510-4 (A10E258-04RE1)	S-4			Water		Batch: 1005430			C-05
Aldrin	ND	0.00943	0.0283		ug/L	1	05/28/10 15:22	EPA 8081B	
alpha-BHC	ND	0.00943	0.0283		"	"	"	"	
beta-BHC	0.0376	0.00943	0.0283		"	"	"	"	
delta-BHC	0.0519	0.00943	0.0283		"	"	"	"	
gamma-BHC (Lindane)	ND	0.00943	0.0283		"	"	"	"	
alpha-Chlordane	ND	0.00943	0.0283		"	"	"	"	
gamma-Chlordane	ND	0.00943	0.0283		"	"	"	"	
4,4'-DDD	ND	0.00943	0.0283		"	"	"	"	
4,4'-DDE	ND	0.00943	0.0283		"	"	"	"	
4,4'-DDT	ND	0.00943	0.0283		"	"	"	"	
Dieldrin	ND	0.00943	0.0283		"	"	"	"	
Endosulfan I	ND	0.00943	0.0283		"	"	"	"	
Endosulfan II	ND	0.00943	0.0283		"	"	"	"	
Endosulfan sulfate	ND	0.00943	0.0283		"	"	"	"	
Endrin	ND	0.00943	0.0283		"	"	"	"	
Endrin Aldehyde	ND	0.00943	0.0283		"	"	"	"	
Endrin ketone	ND	0.00943	0.0283		"	"	"	"	
Heptachlor	ND	0.00943	0.0283		"	"	"	"	
Heptachlor epoxide	ND	0.00943	0.0283		"	"	"	"	
Methoxychlor	ND	0.00943	0.0755		"	"	"	"	
Chlordane (Technical)	ND	0.0943	0.354		"	"	"	"	
Toxaphene (Total)	ND	0.0943	0.943		"	"	"	"	
cis-Nonachlor	ND	0.00943	0.0283		"	"	"	"	
2,4'-DDD	ND	0.00943	0.0283		"	"	"	"	
2,4'-DDE	ND	0.00943	0.0283		"	"	"	"	
2,4'-DDT	ND	0.00943	0.0283		"	"	"	"	
Hexachlorobenzene	ND	0.00943	0.0283		"	"	"	"	
Hexachlorobutadiene	ND	0.00943	0.0283		"	"	"	"	Q-30
Mirex	ND	0.00943	0.0283		"	"	"	"	
Oxychlordane	ND	0.00943	0.0283		"	"	"	"	
trans-Nonachlor	ND	0.00943	0.0283		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 58 %</i>		<i>Limits: 50-125 %</i>		"	"	"	
<i>Decachlorobiphenyl (Surr)</i>		<i>107 %</i>		<i>Limits: 55-130 %</i>		"	"	"	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-052510-1 (A10E258-01)	S-3			Water		Batch: 1005434			R-04
Acenaphthene	ND	0.0189	0.0377		ug/L	2	05/28/10 18:24	EPA 8270D	
Acenaphthylene	ND	0.0189	0.0377		"	"	"	"	
Anthracene	ND	0.0189	0.0377		"	"	"	"	
Benz(a)anthracene	ND	0.0189	0.0377		"	"	"	"	
Benzo(a)pyrene	ND	0.0189	0.0377		"	"	"	"	
Benzo(b)fluoranthene	0.0273	0.0189	0.0377		"	"	"	"	J
Benzo(k)fluoranthene	ND	0.0189	0.0377		"	"	"	"	
Chrysene	0.0285	0.0189	0.0377		"	"	"	"	J
Fluoranthene	0.0348	0.0189	0.0377		"	"	"	"	J
Fluorene	ND	0.0189	0.0377		"	"	"	"	
1-Methylnaphthalene	ND	0.0377	0.0755		"	"	"	"	
2-Methylnaphthalene	ND	0.0377	0.0755		"	"	"	"	
Naphthalene	ND	0.0377	0.0755		"	"	"	"	
Phenanthrene	ND	0.0377	0.0755		"	"	"	"	
Pyrene	0.0269	0.0189	0.0377		"	"	"	"	J
Carbazole	0.0207	0.0189	0.0377		"	"	"	"	J
Dibenzofuran	ND	0.0189	0.0377		"	"	"	"	
4-Chloro-3-methylphenol	ND	0.472	0.943		"	"	"	"	
2-Chlorophenol	ND	0.472	0.943		"	"	"	"	
2,4-Dichlorophenol	ND	0.472	0.943		"	"	"	"	
2,4-Dimethylphenol	ND	0.472	0.943		"	"	"	"	
2,4-Dinitrophenol	ND	0.943	1.89		"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.943	1.89		"	"	"	"	
2-Methylphenol	ND	0.472	0.943		"	"	"	"	
3+4-Methylphenol(s)	ND	0.472	0.943		"	"	"	"	
2-Nitrophenol	ND	0.472	0.943		"	"	"	"	
4-Nitrophenol	ND	0.472	0.943		"	"	"	"	
Pentachlorophenol (PCP)	ND	0.472	0.943		"	"	"	"	
Phenol	ND	0.943	1.89		"	"	"	"	
2,3,4,6-Tetrachlorophenol	ND	0.472	0.943		"	"	"	"	
2,3,5,6-Tetrachlorophenol	ND	0.472	0.943		"	"	"	"	
2,4,5-Trichlorophenol	ND	0.472	0.943		"	"	"	"	
2,4,6-Trichlorophenol	ND	0.472	0.943		"	"	"	"	
Bis(2-ethylhexyl)phthalate	0.979	0.943	1.89		"	"	"	"	J
Butyl benzyl phthalate	ND	0.943	1.89		"	"	"	"	
Diethylphthalate	ND	0.943	1.89		"	"	"	"	
Dimethylphthalate	ND	0.943	1.89		"	"	"	"	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

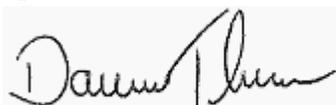
ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit						
MOC-052510-1 (A10E258-01)			Matrix: Water		Batch: 1005434				R-04
Di-n-butylphthalate	ND	0.943	1.89		ug/L	2	"	EPA 8270D	
Di-n-octyl phthalate	ND	0.943	1.89		"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>			<i>Recovery: 69 %</i>		<i>Limits: 35-120 %</i>		"	"	"
<i>2-Fluorobiphenyl (Surr)</i>			<i>64 %</i>		<i>Limits: 30-120 %</i>		"	"	"
<i>Phenol-d6 (Surr)</i>			<i>24 %</i>		<i>Limits: 10-120 %</i>		"	"	"
<i>p-Terphenyl-d14 (Surr)</i>			<i>89 %</i>		<i>Limits: 50-125 %</i>		"	"	"
<i>2-Fluorophenol (Surr)</i>			<i>39 %</i>		<i>Limits: 15-120 %</i>		"	"	"
<i>2,4,6-Tribromophenol (Surr)</i>			<i>87 %</i>		<i>Limits: 35-125 %</i>		"	"	"
MOC-052510-1 (A10E258-01RE2)			Matrix: Water		Batch: 1005434				R-04
Benzo(g,h,i)perylene	ND	0.0943	0.189		ug/L	10	06/02/10 23:19	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0943	0.189		"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0943	0.189		"	"	"	"	
MOC-052510-2 (A10E258-02) S-2			Matrix: Water		Batch: 1005434				R-04
Acenaphthene	ND	0.0189	0.0377		ug/L	2	05/28/10 18:59	EPA 8270D	
Acenaphthylene	ND	0.0189	0.0377		"	"	"	"	
Anthracene	ND	0.0189	0.0377		"	"	"	"	
Benz(a)anthracene	ND	0.0189	0.0377		"	"	"	"	
Benzo(a)pyrene	ND	0.0377	0.0377		"	"	"	"	
Benzo(b)fluoranthene	0.0238	0.0189	0.0377		"	"	"	"	J
Benzo(k)fluoranthene	ND	0.0189	0.0377		"	"	"	"	
Chrysene	0.0227	0.0189	0.0377		"	"	"	"	J
Fluoranthene	0.0408	0.0189	0.0377		"	"	"	"	
Fluorene	ND	0.0189	0.0377		"	"	"	"	
1-Methylnaphthalene	ND	0.0377	0.0755		"	"	"	"	
2-Methylnaphthalene	ND	0.0377	0.0755		"	"	"	"	
Naphthalene	ND	0.0377	0.0755		"	"	"	"	
Phenanthrene	ND	0.0377	0.0755		"	"	"	"	
Pyrene	0.0386	0.0189	0.0377		"	"	"	"	
Carbazole	ND	0.0189	0.0377		"	"	"	"	
Dibenzofuran	ND	0.0189	0.0377		"	"	"	"	
4-Chloro-3-methylphenol	ND	0.472	0.943		"	"	"	"	
2-Chlorophenol	ND	0.472	0.943		"	"	"	"	
2,4-Dichlorophenol	ND	0.472	0.943		"	"	"	"	
2,4-Dimethylphenol	ND	0.472	0.943		"	"	"	"	
2,4-Dinitrophenol	ND	0.943	1.89		"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.943	1.89		"	"	"	"	
2-Methylphenol	ND	0.472	0.943		"	"	"	"	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit						
MOC-052510-2 (A10E258-02)			Matrix: Water		Batch: 1005434				R-04
3+4-Methylphenol(s)	ND	0.472	0.943		ug/L	2	"	EPA 8270D	
2-Nitrophenol	ND	0.472	0.943		"	"	"	"	
4-Nitrophenol	ND	0.472	0.943		"	"	"	"	
Pentachlorophenol (PCP)	ND	0.472	0.943		"	"	"	"	
Phenol	ND	0.943	1.89		"	"	"	"	
2,3,4,6-Tetrachlorophenol	ND	0.472	0.943		"	"	"	"	
2,3,5,6-Tetrachlorophenol	ND	0.472	0.943		"	"	"	"	
2,4,5-Trichlorophenol	ND	0.472	0.943		"	"	"	"	
2,4,6-Trichlorophenol	ND	0.472	0.943		"	"	"	"	
Bis(2-ethylhexyl)phthalate	1.55	0.943	1.89		"	"	"	"	J
Butyl benzyl phthalate	ND	0.943	1.89		"	"	"	"	
Diethylphthalate	ND	0.943	1.89		"	"	"	"	
Dimethylphthalate	ND	0.943	1.89		"	"	"	"	
Di-n-butylphthalate	ND	0.943	1.89		"	"	"	"	
Di-n-octyl phthalate	ND	0.943	1.89		"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 57 %</i>		<i>Limits: 35-120 %</i>		"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>55 %</i>		<i>Limits: 30-120 %</i>		"	"	"	
<i>Phenol-d6 (Surr)</i>		<i>21 %</i>		<i>Limits: 10-120 %</i>		"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>86 %</i>		<i>Limits: 50-125 %</i>		"	"	"	
<i>2-Fluorophenol (Surr)</i>		<i>30 %</i>		<i>Limits: 15-120 %</i>		"	"	"	
<i>2,4,6-Tribromophenol (Surr)</i>		<i>83 %</i>		<i>Limits: 35-125 %</i>		"	"	"	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit						
MOC-052510-2 (A10E258-02RE2)			Matrix: Water		Batch: 1005434				R-04
Benzo(g,h,i)perylene	ND	0.0943	0.189		ug/L	10	06/03/10 00:30	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0943	0.189		"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0943	0.189		"	"	"	"	
MOC-052510-3 (A10E258-03) S-1			Matrix: Water		Batch: 1005434				R-04
Acenaphthene	ND	0.0189	0.0377		ug/L	2	05/28/10 19:35	EPA 8270D	
Acenaphthylene	ND	0.0189	0.0377		"	"	"	"	
Anthracene	ND	0.0189	0.0377		"	"	"	"	
Benz(a)anthracene	ND	0.0189	0.0377		"	"	"	"	
Benzo(a)pyrene	ND	0.0189	0.0377		"	"	"	"	
Benzo(b)fluoranthene	ND	0.0189	0.0377		"	"	"	"	
Benzo(k)fluoranthene	ND	0.0189	0.0377		"	"	"	"	
Chrysene	ND	0.0189	0.0377		"	"	"	"	
Fluoranthene	ND	0.0189	0.0377		"	"	"	"	
Fluorene	ND	0.0189	0.0377		"	"	"	"	
1-Methylnaphthalene	ND	0.0377	0.0755		"	"	"	"	
2-Methylnaphthalene	ND	0.0377	0.0755		"	"	"	"	
Naphthalene	ND	0.0377	0.0755		"	"	"	"	
Phenanthrene	ND	0.0377	0.0755		"	"	"	"	
Pyrene	0.0207	0.0189	0.0377		"	"	"	"	J
Carbazole	ND	0.0189	0.0377		"	"	"	"	
Dibenzofuran	ND	0.0189	0.0377		"	"	"	"	
4-Chloro-3-methylphenol	ND	0.472	0.943		"	"	"	"	
2-Chlorophenol	ND	0.472	0.943		"	"	"	"	
2,4-Dichlorophenol	ND	0.472	0.943		"	"	"	"	
2,4-Dimethylphenol	ND	0.472	0.943		"	"	"	"	
2,4-Dinitrophenol	ND	0.943	1.89		"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	0.943	1.89		"	"	"	"	
2-Methylphenol	ND	0.472	0.943		"	"	"	"	
3+4-Methylphenol(s)	ND	0.472	0.943		"	"	"	"	
2-Nitrophenol	ND	0.472	0.943		"	"	"	"	
4-Nitrophenol	ND	0.472	0.943		"	"	"	"	
Pentachlorophenol (PCP)	ND	0.472	0.943		"	"	"	"	
Phenol	ND	0.943	1.89		"	"	"	"	
2,3,4,6-Tetrachlorophenol	ND	0.472	0.943		"	"	"	"	
2,3,5,6-Tetrachlorophenol	ND	0.472	0.943		"	"	"	"	
2,4,5-Trichlorophenol	ND	0.472	0.943		"	"	"	"	
2,4,6-Trichlorophenol	ND	0.472	0.943		"	"	"	"	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

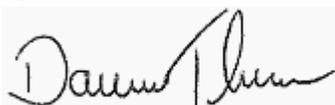
Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting			Date Analyzed	Method	Notes
			Limit	Units	Dilution			
MOC-052510-3 (A10E258-03)			Matrix: Water		Batch: 1005434			R-04
Bis(2-ethylhexyl)phthalate	ND	0.943	1.89	ug/L	2	"	EPA 8270D	
Butyl benzyl phthalate	ND	0.943	1.89	"	"	"	"	
Diethylphthalate	ND	0.943	1.89	"	"	"	"	
Dimethylphthalate	ND	0.943	1.89	"	"	"	"	
Di-n-butylphthalate	ND	0.943	1.89	"	"	"	"	
Di-n-octyl phthalate	ND	0.943	1.89	"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>			<i>Recovery: 80 %</i>	<i>Limits: 35-120 %</i>	"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>			<i>71 %</i>	<i>Limits: 30-120 %</i>	"	"	"	
<i>Phenol-d6 (Surr)</i>			<i>27 %</i>	<i>Limits: 10-120 %</i>	"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>			<i>96 %</i>	<i>Limits: 50-125 %</i>	"	"	"	
<i>2-Fluorophenol (Surr)</i>			<i>43 %</i>	<i>Limits: 15-120 %</i>	"	"	"	
<i>2,4,6-Tribromophenol (Surr)</i>			<i>91 %</i>	<i>Limits: 35-125 %</i>	"	"	"	
MOC-052510-3 (A10E258-03RE2)			Matrix: Water		Batch: 1005434			R-04
Benzo(g,h,i)perylene	ND	0.0943	0.189	ug/L	10	06/03/10 01:05	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0943	0.189	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0943	0.189	"	"	"	"	
MOC-052510-4 (A10E258-04) S-4			Matrix: Water		Batch: 1005434			R-04
Acenaphthene	ND	0.0280	0.0561	ug/L	3	05/28/10 20:10	EPA 8270D	
Acenaphthylene	ND	0.0280	0.0561	"	"	"	"	
Anthracene	ND	0.0280	0.0561	"	"	"	"	
Benz(a)anthracene	ND	0.0280	0.0561	"	"	"	"	
Benzo(a)pyrene	ND	0.0280	0.0561	"	"	"	"	
Benzo(b)fluoranthene	ND	0.0280	0.0561	"	"	"	"	
Benzo(k)fluoranthene	ND	0.0280	0.0561	"	"	"	"	
Chrysene	ND	0.0280	0.0561	"	"	"	"	
Fluoranthene	ND	0.0280	0.0561	"	"	"	"	
Fluorene	ND	0.0280	0.0561	"	"	"	"	
1-Methylnaphthalene	ND	0.0561	0.112	"	"	"	"	
2-Methylnaphthalene	ND	0.0561	0.112	"	"	"	"	
Naphthalene	ND	0.0561	0.112	"	"	"	"	
Phenanthrene	ND	0.0561	0.112	"	"	"	"	
Pyrene	0.0452	0.0280	0.0561	"	"	"	"	J
Carbazole	ND	0.0280	0.0561	"	"	"	"	
Dibenzofuran	ND	0.0280	0.0561	"	"	"	"	
4-Chloro-3-methylphenol	ND	0.701	1.40	"	"	"	"	
2-Chlorophenol	ND	0.701	1.40	"	"	"	"	
2,4-Dichlorophenol	ND	0.701	1.40	"	"	"	"	

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Project: **McCall Portland**

Project Number: No
Project Manager: John Renda

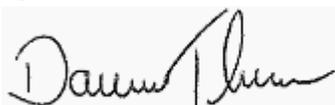
Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix: Water					
MOC-052510-4 (A10E258-04)			Matrix: Water		Batch: 1005434				R-04
2,4-Dimethylphenol	ND	0.701	1.40		ug/L	3	"	EPA 8270D	
2,4-Dinitrophenol	ND	1.40	2.80		"	"	"	"	
4,6-Dinitro-2-methylphenol	ND	1.40	2.80		"	"	"	"	
2-Methylphenol	ND	0.701	1.40		"	"	"	"	
3+4-Methylphenol(s)	ND	0.701	1.40		"	"	"	"	
2-Nitrophenol	ND	0.701	1.40		"	"	"	"	
4-Nitrophenol	ND	0.701	1.40		"	"	"	"	
Pentachlorophenol (PCP)	ND	0.701	1.40		"	"	"	"	
Phenol	ND	1.40	2.80		"	"	"	"	
2,3,4,6-Tetrachlorophenol	ND	0.701	1.40		"	"	"	"	
2,3,5,6-Tetrachlorophenol	ND	0.701	1.40		"	"	"	"	
2,4,5-Trichlorophenol	ND	0.701	1.40		"	"	"	"	
2,4,6-Trichlorophenol	ND	0.701	1.40		"	"	"	"	
Bis(2-ethylhexyl)phthalate	1.45	1.40	2.80		"	"	"	"	J
Butyl benzyl phthalate	ND	1.40	2.80		"	"	"	"	
Diethylphthalate	ND	1.40	2.80		"	"	"	"	
Dimethylphthalate	ND	1.40	2.80		"	"	"	"	
Di-n-butylphthalate	ND	1.40	2.80		"	"	"	"	
Di-n-octyl phthalate	ND	1.40	2.80		"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 79 %</i>		<i>Limits: 35-120 %</i>		"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>72 %</i>		<i>Limits: 30-120 %</i>		"	"	"	
<i>Phenol-d6 (Surr)</i>		<i>27 %</i>		<i>Limits: 10-120 %</i>		"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>73 %</i>		<i>Limits: 50-125 %</i>		"	"	"	
<i>2-Fluorophenol (Surr)</i>		<i>43 %</i>		<i>Limits: 15-120 %</i>		"	"	"	
<i>2,4,6-Tribromophenol (Surr)</i>		<i>101 %</i>		<i>Limits: 35-125 %</i>		"	"	"	

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ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MOC-052510-4 (A10E258-04RE2)			Matrix: Water		Batch: 1005434			R-04
Benzo(g,h,i)perylene	ND	0.0935	0.187	ug/L	10	06/03/10 01:41	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.0935	0.187	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0935	0.187	"	"	"	"	

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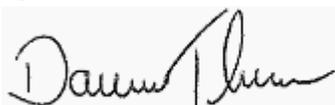
Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-052510-1 (A10E258-01) S-3									
			Matrix: Water		Batch: 1005452				
Arsenic	0.989	0.500	2.00		ug/L	1	06/01/10 15:49	EPA 200.8	J
Cadmium	0.133	0.100	1.00		"	"	"	"	J
Chromium	1.48	0.200	2.00		"	"	"	"	J
Copper	34.8	0.300	4.00		"	"	"	"	
Lead	7.03	0.200	1.00		"	"	"	"	
Zinc	109	1.30	4.00		"	"	"	"	
MOC-052510-2 (A10E258-02) S-2									
			Matrix: Water		Batch: 1005452				
Arsenic	ND	0.500	2.00		ug/L	1	06/01/10 15:52	EPA 200.8	
Cadmium	ND	0.100	1.00		"	"	"	"	
Chromium	1.32	0.200	2.00		"	"	"	"	J
Copper	8.77	0.300	4.00		"	"	"	"	
Lead	2.93	0.200	1.00		"	"	"	"	
Zinc	84.8	1.30	4.00		"	"	"	"	
MOC-052510-3 (A10E258-03) S-1									
			Matrix: Water		Batch: 1005452				
Arsenic	ND	0.500	2.00		ug/L	1	06/01/10 16:01	EPA 200.8	
Cadmium	0.111	0.100	1.00		"	"	"	"	J
Chromium	0.878	0.200	2.00		"	"	"	"	J
Copper	9.34	0.300	4.00		"	"	"	"	
Lead	1.82	0.200	1.00		"	"	"	"	
Zinc	329	1.30	4.00		"	"	"	"	
MOC-052510-4 (A10E258-04) S-4									
			Matrix: Water		Batch: 1005452				
Arsenic	1.10	0.500	2.00		ug/L	1	06/01/10 16:04	EPA 200.8	J
Cadmium	0.233	0.100	1.00		"	"	"	"	J
Chromium	1.17	0.200	2.00		"	"	"	"	J
Copper	14.6	0.300	4.00		"	"	"	"	
Lead	2.51	0.200	1.00		"	"	"	"	
Zinc	81.3	1.30	4.00		"	"	"	"	

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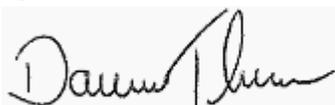
Reported:
06/20/10 17:03

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-052510-1 (A10E258-01) S-3									
			Matrix: Water		Batch: 1005435				
Arsenic	0.656	0.500	2.00		ug/L	1	05/28/10 16:14	EPA 200.8 (Diss)	J
Cadmium	0.122	0.100	1.00		"	"	"	"	J
Chromium	0.900	0.200	2.00		"	"	"	"	J
Copper	22.9	0.300	4.00		"	"	"	"	
Lead	0.822	0.200	1.00		"	"	"	"	J
Zinc	98.5	1.30	4.00		"	"	"	"	
MOC-052510-2 (A10E258-02) S-2									
			Matrix: Water		Batch: 1005435				
Arsenic	ND	0.500	2.00		ug/L	1	05/28/10 16:19	EPA 200.8 (Diss)	
Cadmium	ND	0.100	1.00		"	"	"	"	
Chromium	0.767	0.200	2.00		"	"	"	"	J
Copper	6.48	0.300	4.00		"	"	"	"	
Lead	0.211	0.200	1.00		"	"	"	"	J
Zinc	72.8	1.30	4.00		"	"	"	"	
MOC-052510-3 (A10E258-03) S-1									
			Matrix: Water		Batch: 1005435				
Arsenic	ND	0.500	2.00		ug/L	1	05/28/10 16:22	EPA 200.8 (Diss)	
Cadmium	0.111	0.100	1.00		"	"	"	"	J
Chromium	0.656	0.200	2.00		"	"	"	"	J
Copper	6.97	0.300	4.00		"	"	"	"	
Lead	0.244	0.200	1.00		"	"	"	"	J
Zinc	293	1.30	4.00		"	"	"	"	
MOC-052510-4 (A10E258-04) S-4									
			Matrix: Water		Batch: 1005435				
Arsenic	0.922	0.500	2.00		ug/L	1	05/28/10 16:25	EPA 200.8 (Diss)	J
Cadmium	0.189	0.100	1.00		"	"	"	"	J
Chromium	0.789	0.200	2.00		"	"	"	"	J
Copper	10.4	0.300	4.00		"	"	"	"	
Lead	0.322	0.200	1.00		"	"	"	"	J
Zinc	63.9	1.30	4.00		"	"	"	"	

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ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MOC-052510-1 (A10E258-01) S-3			Matrix: Water		Batch: 1006004			
Total Suspended Solids	13.6	1.39	1.39	mg/L	1	06/01/10 19:10	SM 2540 D	
MOC-052510-2 (A10E258-02) S-2			Matrix: Water		Batch: 1006004			
Total Suspended Solids	11.3	1.41	1.41	mg/L	1	06/01/10 19:10	SM 2540 D	
MOC-052510-3 (A10E258-03) S-1			Matrix: Water		Batch: 1006004			
Total Suspended Solids	4.52	1.19	1.19	mg/L	1	06/01/10 19:10	SM 2540 D	
MOC-052510-4 (A10E258-04) S-4			Matrix: Water		Batch: 1006004			
Total Suspended Solids	17.5	1.12	1.12	mg/L	1	06/01/10 19:10	SM 2540 D	

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QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel Range (C10-C22) and Oil Range (C22-C40) Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005451 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (1005451-BLK1)						Prepared: 05/28/10 08:56 Analyzed: 05/28/10 22:38						
NWTPH-Dx												
Diesel Range Organics	ND	0.0400	0.0800	mg/L	1	---	---	---	---	---	---	
Oil Range Organics	ND	0.0800	0.200	"	"	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (1005451-BS1)						Prepared: 05/28/10 08:56 Analyzed: 05/28/10 23:02						
NWTPH-Dx												
Diesel Range Organics	0.480	0.0400	0.0800	mg/L	1	0.500	---	96	70-130%	---	---	
Oil Range Organics	0.589	0.0800	0.200	"	"	"	---	118	"	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (1005451-BSD1)						Prepared: 05/28/10 08:56 Analyzed: 05/28/10 23:25						
NWTPH-Dx												
Diesel Range Organics	0.501	0.0400	0.0800	mg/L	1	0.500	---	100	70-130%	4	30%	
Oil Range Organics	0.585	0.0800	0.200	"	"	"	---	117	"	0.6	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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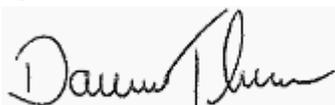
Reported:
06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005415 - EPA 5030B						Water						
Blank (1005415-BLK1)						Prepared: 05/26/10 10:54 Analyzed: 05/26/10 13:09						
NWTPH-Gx												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 78 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>93 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (1005415-BS2)						Prepared: 05/26/10 10:54 Analyzed: 05/26/10 12:41						
NWTPH-Gx												
Gasoline Range Organics	0.552	0.0500	0.100	mg/L	1	0.500	---	110	70-130%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 79 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>99 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (1005415-DUP1)						Prepared: 05/26/10 10:54 Analyzed: 05/26/10 14:05						
QC Source Sample: Other (A10E251-01)												
NWTPH-Gx												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	ND	---	---		30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 80 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>95 %</i>		<i>50-150 %</i>		<i>"</i>						

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Project Manager: John Renda

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06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005449 - EPA 3510C (Neutral pH)						Water						
Blank (1005449-BLK2)						Prepared: 05/27/10 16:07 Analyzed: 06/01/10 11:12						C-07
EPA 8082A												
Aroclor 1016	ND	0.0100	0.0200	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			Recovery: 75 %		Limits: 50-125 %		Dilution: 1x					
<i>Decachlorobiphenyl (Surr)</i>			100 %		55-130 %		"					
LCS (1005449-BS1)						Prepared: 05/27/10 16:07 Analyzed: 06/01/10 09:44						C-07
EPA 8082A												
Aroclor 1016	0.574	0.0100	0.0200	ug/L	1	0.625	---	92	40-140%	---	---	
Aroclor 1260	0.625	0.0100	0.0200	"	"	"	---	100	60-130%	---	---	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			Recovery: 72 %		Limits: 50-125 %		Dilution: 1x					
<i>Decachlorobiphenyl (Surr)</i>			99 %		55-130 %		"					
LCS Dup (1005449-BSD1)						Prepared: 05/27/10 16:07 Analyzed: 06/01/10 09:59						C-07, Q-19
EPA 8082A												
Aroclor 1016	0.562	0.0100	0.0200	ug/L	1	0.625	---	90	40-140%	2	25%	
Aroclor 1260	0.611	0.0100	0.0200	"	"	"	---	98	60-130%	2	25%	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			Recovery: 69 %		Limits: 50-125 %		Dilution: 1x					
<i>Decachlorobiphenyl (Surr)</i>			91 %		55-130 %		"					

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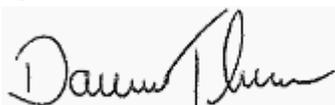
QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005430 - EPA 3510C (Acid Ext.)/3640A (GPC)						Water						
Blank (1005430-BLK1)						Prepared: 05/26/10 08:50 Analyzed: 05/28/10 12:58				C-05		
EPA 8081B												
Aldrin	ND	0.0100	0.0300	ug/L	1	---	---	---	---	---	---	
alpha-BHC	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
beta-BHC	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
delta-BHC	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
gamma-BHC (Lindane)	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
alpha-Chlordane	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
gamma-Chlordane	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
4,4'-DDD	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
4,4'-DDE	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
4,4'-DDT	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Dieldrin	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endosulfan I	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endosulfan II	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endosulfan sulfate	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endrin	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endrin Aldehyde	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endrin ketone	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Heptachlor	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Heptachlor epoxide	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Methoxychlor	ND	0.0100	0.0800	"	"	---	---	---	---	---	---	
Chlordane (Technical)	ND	0.100	0.375	"	"	---	---	---	---	---	---	
Toxaphene (Total)	ND	0.100	1.00	"	"	---	---	---	---	---	---	
cis-Nonachlor	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
2,4'-DDD	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
2,4'-DDE	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
2,4'-DDT	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	Q-30
Mirex	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Oxychlordane	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
trans-Nonachlor	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	

Surr: 2,4,5,6-TCMX (Surr) Recovery: 50 % Limits: 50-125 % Dilution: 1x
Decachlorobiphenyl (Surr) 108 % 55-130 % "

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005430 - EPA 3510C (Acid Ext.)/3640A (GPC)						Water						
LCS (1005430-BS1)						Prepared: 05/26/10 08:50 Analyzed: 05/28/10 13:12						C-05
EPA 8081B												
Aldrin	2.10	0.0100	0.0300	ug/L	1	2.00	---	105	25-140%	---	---	
alpha-BHC	1.97	0.0100	0.0300	"	"	"	---	99	60-130%	---	---	
beta-BHC	2.13	0.0100	0.0300	"	"	"	---	106	65-125%	---	---	
delta-BHC	2.45	0.0100	0.0300	"	"	"	---	122	45-135%	---	---	
gamma-BHC (Lindane)	2.15	0.0100	0.0300	"	"	"	---	107	25-135%	---	---	
alpha-Chlordane	2.35	0.0100	0.0300	"	"	"	---	117	65-125%	---	---	
gamma-Chlordane	2.39	0.0100	0.0300	"	"	"	---	120	60-125%	---	---	
4,4'-DDD	2.52	0.0100	0.0300	"	"	"	---	126	25-150%	---	---	
4,4'-DDE	2.47	0.0100	0.0300	"	"	"	---	123	35-140%	---	---	
4,4'-DDT	3.05	0.0100	0.0300	"	"	"	---	152	45-140%	---	---	Q-29
Dieldrin	2.57	0.0100	0.0300	"	"	"	---	128	60-130%	---	---	
Endosulfan I	2.36	0.0100	0.0300	"	"	"	---	118	50-110%	---	---	Q-29
Endosulfan II	2.70	0.0100	0.0300	"	"	"	---	135	30-130%	---	---	Q-29
Endosulfan sulfate	2.76	0.0100	0.0300	"	"	"	---	138	55-135%	---	---	Q-29
Endrin	2.69	0.0100	0.0300	"	"	"	---	134	"	---	---	
Endrin Aldehyde	2.63	0.0100	0.0300	"	"	"	---	132	"	---	---	
Endrin ketone	2.80	0.0100	0.0300	"	"	"	---	140	75-125%	---	---	Q-29
Heptachlor	2.29	0.0100	0.0300	"	"	"	---	114	40-130%	---	---	
Heptachlor epoxide	2.32	0.0100	0.0300	"	"	"	---	116	60-130%	---	---	
Methoxychlor	3.05	0.0100	0.0800	"	"	"	---	153	55-150%	---	---	Q-29

Surr: 2,4,5,6-TCMX (Surr) Recovery: 68 % Limits: 50-125 % Dilution: 1x
 Decachlorobiphenyl (Surr) 127 % 55-130 % "

LCS (1005430-BS2)						Prepared: 05/26/10 08:50 Analyzed: 05/28/10 13:41						C-05
EPA 8081B												
cis-Nonachlor	2.78	0.0100	0.0300	ug/L	1	2.53	---	110	50-150%	---	---	
2,4'-DDD	2.74	0.0100	0.0300	"	"	2.45	---	112	30-135%	---	---	
2,4'-DDE	2.31	0.0100	0.0300	"	"	2.42	---	95	50-140%	---	---	
2,4'-DDT	3.69	0.0100	0.0300	"	"	2.44	---	151	45-140%	---	---	Q-29
Hexachlorobenzene	1.90	0.0100	0.0300	"	"	"	---	78	50-150%	---	---	
Hexachlorobutadiene	1.09	0.0100	0.0300	"	"	2.41	---	45	"	---	---	Q-30
Mirex	2.90	0.0100	0.0300	"	"	2.60	---	112	"	---	---	
Oxychlordane	2.09	0.0100	0.0300	"	"	2.48	---	84	"	---	---	
trans-Nonachlor	2.37	0.0100	0.0300	"	"	2.46	---	96	"	---	---	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

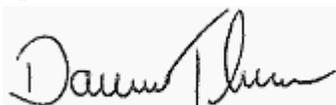
QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005430 - EPA 3510C (Acid Ext.)/3640A (GPC)						Water						
LCS (1005430-BS2)						Prepared: 05/26/10 08:50 Analyzed: 05/28/10 13:41						C-05
<i>Surr: 2,4,5,6-TCMX (Surr)</i>		Recovery: 55 %		Limits: 50-125 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		115 %		55-130 %		"						
LCS Dup (1005430-BSD1)						Prepared: 05/26/10 08:50 Analyzed: 05/28/10 13:27						C-05, Q-19
EPA 8081B												
Aldrin	1.89	0.0100	0.0300	ug/L	1	2.00	---	95	25-140%	11	25%	
alpha-BHC	1.83	0.0100	0.0300	"	"	"	---	91	60-130%	8	25%	
beta-BHC	1.95	0.0100	0.0300	"	"	"	---	98	65-125%	9	25%	
delta-BHC	2.25	0.0100	0.0300	"	"	"	---	113	45-135%	8	25%	
gamma-BHC (Lindane)	1.99	0.0100	0.0300	"	"	"	---	100	25-135%	7	25%	
alpha-Chlordane	2.30	0.0100	0.0300	"	"	"	---	115	65-125%	2	25%	
gamma-Chlordane	2.29	0.0100	0.0300	"	"	"	---	115	60-125%	4	25%	
4,4'-DDD	2.49	0.0100	0.0300	"	"	"	---	125	25-150%	1	25%	
4,4'-DDE	2.43	0.0100	0.0300	"	"	"	---	122	35-140%	1	25%	
4,4'-DDT	3.06	0.0100	0.0300	"	"	"	---	153	45-140%	0.5	25%	Q-29
Dieldrin	2.51	0.0100	0.0300	"	"	"	---	125	60-130%	2	25%	
Endosulfan I	2.31	0.0100	0.0300	"	"	"	---	116	50-110%	2	25%	Q-29
Endosulfan II	2.65	0.0100	0.0300	"	"	"	---	132	30-130%	2	25%	Q-29
Endosulfan sulfate	2.72	0.0100	0.0300	"	"	"	---	136	55-135%	2	25%	Q-29
Endrin	2.63	0.0100	0.0300	"	"	"	---	132	"	2	25%	
Endrin Aldehyde	2.54	0.0100	0.0300	"	"	"	---	127	"	4	25%	
Endrin ketone	2.83	0.0100	0.0300	"	"	"	---	141	75-125%	1	25%	Q-29
Heptachlor	2.00	0.0100	0.0300	"	"	"	---	100	40-130%	13	25%	
Heptachlor epoxide	2.24	0.0100	0.0300	"	"	"	---	112	60-130%	4	25%	
Methoxychlor	2.98	0.0100	0.0800	"	"	"	---	149	55-150%	2	25%	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>		Recovery: 58 %		Limits: 50-125 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		119 %		55-130 %		"						
LCS Dup (1005430-BSD2)						Prepared: 05/26/10 08:50 Analyzed: 05/28/10 13:56						C-05, Q-19
EPA 8081B												
cis-Nonachlor	2.86	0.0100	0.0300	ug/L	1	2.53	---	113	50-150%	3	25%	
2,4'-DDD	2.87	0.0100	0.0300	"	"	2.45	---	117	30-135%	4	25%	
2,4'-DDE	2.35	0.0100	0.0300	"	"	2.42	---	97	50-140%	2	25%	
2,4'-DDT	3.76	0.0100	0.0300	"	"	2.44	---	154	45-140%	2	25%	Q-29
Hexachlorobenzene	2.17	0.0100	0.0300	"	"	"	---	89	50-150%	13	25%	
Hexachlorobutadiene	1.40	0.0100	0.0300	"	"	2.41	---	58	"	25	25%	Q-30

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005430 - EPA 3510C (Acid Ext.)/3640A (GPC)						Water						
LCS Dup (1005430-BSD2)						Prepared: 05/26/10 08:50		Analyzed: 05/28/10 13:56		C-05, Q-19		
Mirex	2.94	0.0100	0.0300	ug/L	"	2.60	---	113	"	1	25%	
Oxychlorane	2.25	0.0100	0.0300	"	"	2.48	---	91	"	8	25%	
trans-Nonachlor	2.48	0.0100	0.0300	"	"	2.46	---	101	"	5	25%	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 57 %</i>		<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>						
<i>Decachlorobiphenyl (Surr)</i>		<i>124 %</i>		<i>55-130 %</i>		<i>"</i>						

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Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005434 - EPA 3510C (Acid Extraction)						Water						
Blank (1005434-BLK1)						Prepared: 05/27/10 09:45 Analyzed: 05/28/10 16:36						
EPA 8270D												
Acenaphthene	ND	0.0100	0.0200	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Anthracene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benzo(b+k)fluoranthene(s)	ND	0.0200	0.0400	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Chrysene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Fluorene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0200	0.0400	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0200	0.0400	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.0200	0.0400	"	"	---	---	---	---	---	---	
Pyrene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	

<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>Recovery: 75 %</i>	<i>Limits: 35-120 %</i>	<i>Dilution: 1x</i>
<i>2-Fluorobiphenyl (Surr)</i>	<i>69 %</i>	<i>30-120 %</i>	<i>"</i>
<i>Phenol-d6 (Surr)</i>	<i>25 %</i>	<i>10-120 %</i>	<i>"</i>
<i>p-Terphenyl-d14 (Surr)</i>	<i>82 %</i>	<i>50-125 %</i>	<i>"</i>
<i>2-Fluorophenol (Surr)</i>	<i>43 %</i>	<i>15-120 %</i>	<i>"</i>
<i>2,4,6-Tribromophenol (Surr)</i>	<i>78 %</i>	<i>35-125 %</i>	<i>"</i>

LCS (1005434-BS1)

Prepared: 05/27/10 09:45 Analyzed: 05/28/10 17:12

EPA 8270D

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005434 - EPA 3510C (Acid Extraction)						Water						
LCS (1005434-BS1)						Prepared: 05/27/10 09:45 Analyzed: 05/28/10 17:12						
Acenaphthene	1.43	0.0100	0.0200	ug/L	1	2.00	---	71	45-120%	---	---	
Acenaphthylene	1.49	0.0100	0.0200	"	"	"	---	74	50-120%	---	---	
Anthracene	1.49	0.0100	0.0200	"	"	"	---	74	55-120%	---	---	
Benz(a)anthracene	1.65	0.0100	0.0200	"	"	"	---	82	"	---	---	
Benzo(a)pyrene	1.68	0.0100	0.0200	"	"	"	---	84	"	---	---	
Benzo(b)fluoranthene	1.75	0.0100	0.0200	"	"	"	---	88	45-120%	---	---	
Benzo(k)fluoranthene	1.74	0.0100	0.0200	"	"	"	---	87	45-125%	---	---	
Benzo(b+k)fluoranthene(s)	3.46	0.0200	0.0400	"	"	4.00	---	87	45-120%	---	---	
Benzo(g,h,i)perylene	1.63	0.0100	0.0200	"	"	2.00	---	82	40-125%	---	---	
Chrysene	1.65	0.0100	0.0200	"	"	"	---	83	55-120%	---	---	
Dibenz(a,h)anthracene	1.57	0.0100	0.0200	"	"	"	---	78	40-125%	---	---	
Fluoranthene	1.65	0.0100	0.0200	"	"	"	---	82	55-120%	---	---	
Fluorene	1.54	0.0100	0.0200	"	"	"	---	77	50-120%	---	---	
Indeno(1,2,3-cd)pyrene	1.57	0.0100	0.0200	"	"	"	---	78	45-120%	---	---	
2-Methylnaphthalene	1.39	0.0200	0.0400	"	"	"	---	70	"	---	---	
Naphthalene	1.44	0.0200	0.0400	"	"	"	---	72	40-120%	---	---	
Phenanthrene	1.46	0.0200	0.0400	"	"	"	---	73	50-120%	---	---	
Pyrene	1.68	0.0100	0.0200	"	"	"	---	84	45-120%	---	---	
Dibenzofuran	1.46	0.0100	0.0200	"	"	"	---	73	55-120%	---	---	
3+4-Methylphenol(s)	1.13	0.250	0.500	"	"	"	---	56	30-120%	---	---	
Bis(2-ethylhexyl)phthalate	3.28	0.500	1.00	"	"	4.00	---	82	40-125%	---	---	
Butyl benzyl phthalate	3.37	0.500	1.00	"	"	"	---	84	45-125%	---	---	
Diethylphthalate	3.39	0.500	1.00	"	"	"	---	85	40-120%	---	---	
Dimethylphthalate	3.40	0.500	1.00	"	"	"	---	85	25-120%	---	---	
Di-n-butylphthalate	3.91	0.500	1.00	"	"	"	---	98	55-120%	---	---	
Di-n-octyl phthalate	3.13	0.500	1.00	"	"	"	---	78	35-130%	---	---	

Surr: Nitrobenzene-d5 (Surr)	Recovery: 72 %	Limits: 35-120 %	Dilution: 1x
2-Fluorobiphenyl (Surr)	67 %	30-120 %	"
Phenol-d6 (Surr)	26 %	10-120 %	"
p-Terphenyl-d14 (Surr)	80 %	50-125 %	"
2-Fluorophenol (Surr)	42 %	15-120 %	"
2,4,6-Tribromophenol (Surr)	79 %	35-125 %	"

LCS Dup (1005434-BSD1)

Prepared: 05/27/10 09:45 Analyzed: 05/28/10 17:48

Q-19

EPA 8270D

Acenaphthene	1.46	0.0100	0.0200	ug/L	1	2.00	---	73	45-120%	2	30%
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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
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Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/20/10 17:03

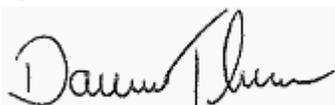
QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005434 - EPA 3510C (Acid Extraction)						Water						
LCS Dup (1005434-BSD1)						Prepared: 05/27/10 09:45 Analyzed: 05/28/10 17:48						Q-19
Acenaphthylene	1.52	0.0100	0.0200	ug/L	"	"	---	76	50-120%	2	30%	
Anthracene	1.55	0.0100	0.0200	"	"	"	---	78	55-120%	4	30%	
Benz(a)anthracene	1.70	0.0100	0.0200	"	"	"	---	85	"	3	30%	
Benzo(a)pyrene	1.66	0.0100	0.0200	"	"	"	---	83	"	1	30%	
Benzo(b)fluoranthene	1.73	0.0100	0.0200	"	"	"	---	87	45-120%	1	30%	
Benzo(k)fluoranthene	1.69	0.0100	0.0200	"	"	"	---	84	45-125%	3	30%	
Benzo(b+k)fluoranthene(s)	3.38	0.0200	0.0400	"	"	4.00	---	85	45-120%	2	30%	
Benzo(g,h,i)perylene	1.57	0.0100	0.0200	"	"	2.00	---	79	40-125%	4	30%	
Chrysene	1.71	0.0100	0.0200	"	"	"	---	85	55-120%	3	30%	
Dibenz(a,h)anthracene	1.70	0.0100	0.0200	"	"	"	---	85	40-125%	8	30%	
Fluoranthene	1.54	0.0100	0.0200	"	"	"	---	77	55-120%	7	30%	
Fluorene	1.59	0.0100	0.0200	"	"	"	---	79	50-120%	3	30%	
Indeno(1,2,3-cd)pyrene	1.62	0.0100	0.0200	"	"	"	---	81	45-120%	3	30%	
2-Methylnaphthalene	1.47	0.0200	0.0400	"	"	"	---	74	"	5	30%	
Naphthalene	1.49	0.0200	0.0400	"	"	"	---	74	40-120%	4	30%	
Phenanthrene	1.49	0.0200	0.0400	"	"	"	---	75	50-120%	2	30%	
Pyrene	1.71	0.0100	0.0200	"	"	"	---	86	45-120%	2	30%	
Dibenzofuran	1.50	0.0100	0.0200	"	"	"	---	75	55-120%	3	30%	
3+4-Methylphenol(s)	1.14	0.250	0.500	"	"	"	---	57	30-120%	1	30%	
Bis(2-ethylhexyl)phthalate	3.40	0.500	1.00	"	"	4.00	---	85	40-125%	4	30%	
Butyl benzyl phthalate	3.82	0.500	1.00	"	"	"	---	96	45-125%	12	30%	
Diethylphthalate	3.38	0.500	1.00	"	"	"	---	85	40-120%	0.4	30%	
Dimethylphthalate	3.37	0.500	1.00	"	"	"	---	84	25-120%	0.7	30%	
Di-n-butylphthalate	4.03	0.500	1.00	"	"	"	---	101	55-120%	3	30%	
Di-n-octyl phthalate	2.94	0.500	1.00	"	"	"	---	73	35-130%	6	30%	

Surr: Nitrobenzene-d5 (Surr)	Recovery: 74 %	Limits: 35-120 %	Dilution: 1x
2-Fluorobiphenyl (Surr)	66 %	30-120 %	"
Phenol-d6 (Surr)	25 %	10-120 %	"
p-Terphenyl-d14 (Surr)	85 %	50-125 %	"
2-Fluorophenol (Surr)	44 %	15-120 %	"
2,4,6-Tribromophenol (Surr)	73 %	35-125 %	"

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Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005452 - EPA 3015A						Water						
Blank (1005452-BLK1)						Prepared: 05/28/10 09:03 Analyzed: 06/01/10 14:49						
EPA 200.8												
Arsenic	ND	0.500	2.00	ug/L	1	---	---	---	---	---	---	---
Cadmium	ND	0.100	1.00	"	"	---	---	---	---	---	---	---
Chromium	ND	0.200	2.00	"	"	---	---	---	---	---	---	---
Copper	ND	0.300	4.00	"	"	---	---	---	---	---	---	---
Lead	ND	0.200	1.00	"	"	---	---	---	---	---	---	---
Zinc	ND	1.30	4.00	"	"	---	---	---	---	---	---	---
LCS (1005452-BS1)						Prepared: 05/28/10 09:03 Analyzed: 06/01/10 14:52						
EPA 200.8												
Arsenic	54.1	0.500	2.00	ug/L	1	55.6	---	97	85-115%	---	---	---
Cadmium	54.6	0.100	1.00	"	"	"	---	98	"	---	---	---
Chromium	50.4	0.200	2.00	"	"	"	---	91	"	---	---	---
Copper	55.5	0.300	4.00	"	"	"	---	100	"	---	---	---
Lead	52.2	0.200	1.00	"	"	"	---	94	"	---	---	---
Zinc	51.8	1.30	4.00	"	"	"	---	93	"	---	---	---
Duplicate (1005452-DUP1)						Prepared: 05/28/10 09:03 Analyzed: 06/01/10 15:07						
QC Source Sample: Other (A10E213-01)												
EPA 200.8												
Arsenic	ND	0.500	2.00	ug/L	1	---	ND	---	---	---	20%	---
Cadmium	ND	0.100	1.00	"	"	---	0.311	---	---	---	20%	---
Chromium	7.30	0.200	2.00	"	"	---	7.07	---	---	3	20%	---
Copper	ND	0.300	4.00	"	"	---	ND	---	---	---	20%	---
Lead	ND	0.200	1.00	"	"	---	ND	---	---	---	20%	---
Zinc	ND	1.30	4.00	"	"	---	ND	---	---	---	20%	---
Matrix Spike (1005452-MS1)						Prepared: 05/28/10 09:03 Analyzed: 06/01/10 15:28						
QC Source Sample: Other (A10E213-06)												
EPA 200.8												
Arsenic	53.9	0.500	2.00	ug/L	1	55.6	ND	97	70-130%	---	---	---
Cadmium	56.8	0.100	1.00	"	"	"	ND	102	"	---	---	---
Chromium	55.4	0.200	2.00	"	"	"	5.57	90	"	---	---	---
Copper	54.4	0.300	4.00	"	"	"	ND	98	"	---	---	---
Lead	53.6	0.200	1.00	"	"	"	ND	96	"	---	---	---
Zinc	51.9	1.30	4.00	"	"	"	ND	93	"	---	---	---

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 Portland, OR 97224

Project: **McCall Portland**
 Project Number: No
 Project Manager: John Renda

Reported:
 06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005452 - EPA 3015A						Water						
Matrix Spike (1005452-MS2)						Prepared: 05/28/10 09:03 Analyzed: 06/01/10 15:55						
QC Source Sample: MOC-052510-2 (A10E258-02)												
EPA 200.8												
Arsenic	52.3	0.500	2.00	ug/L	1	55.6	ND	94	70-130%	---	---	
Cadmium	54.4	0.100	1.00	"	"	"	ND	98	"	---	---	
Chromium	49.2	0.200	2.00	"	"	"	1.32	86	"	---	---	
Copper	61.7	0.300	4.00	"	"	"	8.77	95	"	---	---	
Lead	54.5	0.200	1.00	"	"	"	2.93	93	"	---	---	
Zinc	134	1.30	4.00	"	"	"	84.8	89	"	---	---	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
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Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005435 - EPA 3015A - Dissolved						Water						
Blank (1005435-BLK1)						Prepared: 05/27/10 09:48 Analyzed: 05/28/10 14:34						
EPA 200.8 (Diss)												
Arsenic	ND	0.500	2.00	ug/L	1	---	---	---	---	---	---	---
Cadmium	ND	0.100	1.00	"	"	---	---	---	---	---	---	---
Chromium	ND	0.200	2.00	"	"	---	---	---	---	---	---	---
Copper	ND	0.300	4.00	"	"	---	---	---	---	---	---	---
Lead	ND	0.200	1.00	"	"	---	---	---	---	---	---	---
Zinc	ND	1.30	4.00	"	"	---	---	---	---	---	---	---
LCS (1005435-BS1)						Prepared: 05/27/10 09:48 Analyzed: 05/28/10 14:37						
EPA 200.8 (Diss)												
Arsenic	52.4	0.500	2.00	ug/L	1	55.6	---	94	85-115%	---	---	---
Cadmium	53.2	0.100	1.00	"	"	"	---	96	"	---	---	---
Chromium	52.8	0.200	2.00	"	"	"	---	95	"	---	---	---
Copper	53.4	0.300	4.00	"	"	"	---	96	"	---	---	---
Lead	52.3	0.200	1.00	"	"	"	---	94	"	---	---	---
Zinc	50.9	1.30	4.00	"	"	"	---	92	"	---	---	---
Duplicate (1005435-DUP1)						Prepared: 05/27/10 09:48 Analyzed: 05/28/10 15:07						
QC Source Sample: Other (A10E213-05)												
EPA 200.8 (Diss)												
Arsenic	ND	0.500	2.00	ug/L	1	---	ND	---	---	---	20%	---
Cadmium	ND	0.100	1.00	"	"	---	ND	---	---	---	20%	---
Chromium	7.29	0.200	2.00	"	"	---	7.07	---	---	3	20%	---
Copper	ND	0.300	4.00	"	"	---	ND	---	---	---	20%	---
Lead	ND	0.200	1.00	"	"	---	ND	---	---	---	20%	---
Zinc	1.53	1.30	4.00	"	"	---	ND	---	---	---	20%	J
Matrix Spike (1005435-MS1)						Prepared: 05/27/10 09:48 Analyzed: 05/28/10 15:34						
QC Source Sample: Other (A10E213-06)												
EPA 200.8 (Diss)												
Arsenic	53.4	0.500	2.00	ug/L	1	55.6	ND	96	70-130%	---	---	---
Cadmium	55.2	0.100	1.00	"	"	"	ND	99	"	---	---	---
Chromium	59.2	0.200	2.00	"	"	"	5.87	96	"	---	---	---
Copper	54.5	0.300	4.00	"	"	"	ND	98	"	---	---	---
Lead	52.5	0.200	1.00	"	"	"	ND	94	"	---	---	---
Zinc	54.0	1.30	4.00	"	"	"	2.60	93	"	---	---	---

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QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1005435 - EPA 3015A - Dissolved						Water						
Matrix Spike (1005435-MS2)						Prepared: 05/27/10 09:48 Analyzed: 05/28/10 16:28						
QC Source Sample: MOC-052510-4 (A10E258-04)												
EPA 200.8 (Diss)												
Arsenic	54.0	0.500	2.00	ug/L	1	55.6	0.922	96	70-130%	---	---	
Cadmium	55.0	0.100	1.00	"	"	"	0.189	99	"	---	---	
Chromium	53.4	0.200	2.00	"	"	"	0.789	95	"	---	---	
Copper	65.4	0.300	4.00	"	"	"	10.4	99	"	---	---	
Lead	53.7	0.200	1.00	"	"	"	0.322	96	"	---	---	
Zinc	117	1.30	4.00	"	"	"	63.9	95	"	---	---	

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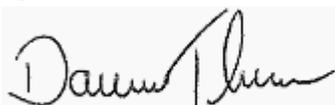
Reported:
 06/20/10 17:03

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006004 - Total Suspended Solids						Water						
Blank (1006004-BLK1)						Prepared: 06/01/10 11:10 Analyzed: 06/01/10 19:10						
SM 2540 D												
Total Suspended Solids	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	---
Duplicate (1006004-DUP1)						Prepared: 06/01/10 11:10 Analyzed: 06/01/10 19:10						
QC Source Sample: Other (A10E257-01)												
SM 2540 D												
Total Suspended Solids	51.2	6.10	6.10	mg/L	1	---	53.0	---	---	3	20%	
Duplicate (1006004-DUP2)						Prepared: 06/01/10 11:10 Analyzed: 06/01/10 19:10						
QC Source Sample: Other (A10E279-01)												
SM 2540 D												
Total Suspended Solids	46.0	5.00	5.00	mg/L	1	---	48.0	---	---	4	20%	
Reference (1006004-SRM1)						Prepared: 06/01/10 11:10 Analyzed: 06/01/10 19:10						
SM 2540 D												
Total Suspended Solids	89.6			mg/L	1	87.9		102	90-110%	---	---	

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SAMPLE PREPARATION INFORMATION

Diesel Range (C10-C22) and Oil Range (C22-C40) Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005451							
A10E258-01	Water	NWTPH-Dx	05/25/10 16:10	05/28/10 08:56	1040mL/2mL	1000mL/2mL	0.96
A10E258-02	Water	NWTPH-Dx	05/25/10 16:25	05/28/10 08:56	1055mL/2mL	1000mL/2mL	0.95
A10E258-03	Water	NWTPH-Dx	05/25/10 16:35	05/28/10 08:56	1055mL/2mL	1000mL/2mL	0.95
A10E258-04	Water	NWTPH-Dx	05/25/10 16:40	05/28/10 08:56	1065mL/2mL	1000mL/2mL	0.94

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005415							
A10E258-01	Water	NWTPH-Gx	05/25/10 16:10	05/26/10 14:00	5mL/5mL	5mL/5mL	1.00
A10E258-02	Water	NWTPH-Gx	05/25/10 16:25	05/26/10 14:00	5mL/5mL	5mL/5mL	1.00
A10E258-03	Water	NWTPH-Gx	05/25/10 16:35	05/26/10 14:00	5mL/5mL	5mL/5mL	1.00
A10E258-04	Water	NWTPH-Gx	05/25/10 16:40	05/26/10 14:00	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005449							
A10E258-01	Water	EPA 8082A	05/25/10 16:10	05/27/10 16:07	850mL/1mL	1000mL/1mL	1.18
A10E258-02	Water	EPA 8082A	05/25/10 16:25	05/27/10 16:07	920mL/1mL	1000mL/1mL	1.09
A10E258-03	Water	EPA 8082A	05/25/10 16:35	05/27/10 16:07	900mL/1mL	1000mL/1mL	1.11
A10E258-04	Water	EPA 8082A	05/25/10 16:40	05/27/10 16:07	930mL/1mL	1000mL/1mL	1.08

Organochlorine Pesticides by EPA 8081B

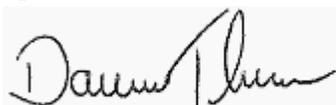
Prep: EPA 3510C (Acid Ext.)/3640A (GPC)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005430							
A10E258-01RE1	Water	EPA 8081B	05/25/10 16:10	05/26/10 14:36	1055mL/5mL	1000mL/5mL	0.95
A10E258-02RE1	Water	EPA 8081B	05/25/10 16:25	05/26/10 14:36	1055mL/5mL	1000mL/5mL	0.95
A10E258-03RE1	Water	EPA 8081B	05/25/10 16:35	05/26/10 14:36	1055mL/5mL	1000mL/5mL	0.95
A10E258-04RE1	Water	EPA 8081B	05/25/10 16:40	05/26/10 14:36	1060mL/5mL	1000mL/5mL	0.94

Semivolatile Organic Compounds by EPA 8270D

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Project: **McCall Portland**

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Reported:
06/20/10 17:03

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005434							
A10E258-01	Water	EPA 8270D	05/25/10 16:10	05/27/10 09:45	1060mL/1mL	1000mL/1mL	0.94
A10E258-01RE2	Water	EPA 8270D	05/25/10 16:10	05/27/10 09:45	1060mL/1mL	1000mL/1mL	0.94
A10E258-02	Water	EPA 8270D	05/25/10 16:25	05/27/10 09:45	1060mL/1mL	1000mL/1mL	0.94
A10E258-02RE2	Water	EPA 8270D	05/25/10 16:25	05/27/10 09:45	1060mL/1mL	1000mL/1mL	0.94
A10E258-03	Water	EPA 8270D	05/25/10 16:35	05/27/10 09:45	1060mL/1mL	1000mL/1mL	0.94
A10E258-03RE2	Water	EPA 8270D	05/25/10 16:35	05/27/10 09:45	1060mL/1mL	1000mL/1mL	0.94
A10E258-04	Water	EPA 8270D	05/25/10 16:40	05/27/10 09:45	1070mL/1mL	1000mL/1mL	0.94
A10E258-04RE2	Water	EPA 8270D	05/25/10 16:40	05/27/10 09:45	1070mL/1mL	1000mL/1mL	0.94

Total Metals by EPA 200.8 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005452							
A10E258-01	Water	EPA 200.8	05/25/10 16:10	05/28/10 09:03	45mL/50mL	45mL/50mL	1.00
A10E258-02	Water	EPA 200.8	05/25/10 16:25	05/28/10 09:03	45mL/50mL	45mL/50mL	1.00
A10E258-03	Water	EPA 200.8	05/25/10 16:35	05/28/10 09:03	45mL/50mL	45mL/50mL	1.00
A10E258-04	Water	EPA 200.8	05/25/10 16:40	05/28/10 09:03	45mL/50mL	45mL/50mL	1.00

Dissolved Metals by EPA 200.8 (ICPMS)

Prep: EPA 3015A - Dissolved

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1005435							
A10E258-01	Water	EPA 200.8 (Diss)	05/25/10 16:10	05/27/10 09:48	45mL/50mL	45mL/50mL	1.00
A10E258-02	Water	EPA 200.8 (Diss)	05/25/10 16:25	05/27/10 09:48	45mL/50mL	45mL/50mL	1.00
A10E258-03	Water	EPA 200.8 (Diss)	05/25/10 16:35	05/27/10 09:48	45mL/50mL	45mL/50mL	1.00
A10E258-04	Water	EPA 200.8 (Diss)	05/25/10 16:40	05/27/10 09:48	45mL/50mL	45mL/50mL	1.00

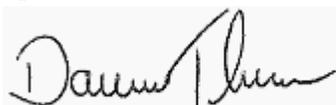
Conventional Chemistry Parameters

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006004							
A10E258-01	Water	SM 2540 D	05/25/10 16:10	06/01/10 11:10	500N/A/1N/A	500N/A/1mL	NA
A10E258-02	Water	SM 2540 D	05/25/10 16:25	06/01/10 11:10	500N/A/1N/A	500N/A/1mL	NA
A10E258-03	Water	SM 2540 D	05/25/10 16:35	06/01/10 11:10	500N/A/1N/A	500N/A/1mL	NA

Apex Laboratories

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland 6650 SW Redwood Lane Ste. 333 Portland, OR 97224	Project: McCall Portland Project Number: No Project Manager: John Renda	Reported: 06/20/10 17:03
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SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A10E258-04	Water	SM 2540 D	05/25/10 16:40	06/01/10 11:10	500N/A/1N/A	500N/A/1mL	NA

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

Notes and Definitions

Qualifiers:

- C-05 Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Sample Final Volume includes the GPC dilution factor.
- C-07 Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- F-04 The hydrocarbons present are a complex mixture of diesel range and heavy oil range organics.
- F-05 The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
- J Estimated Result . Result detected below the lowest point of the calibration curve, but above the specified MDL.
- Q-19 Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-29 Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
- Q-30 Recovery for Lab Control Spike (LCS) is below the lower control limit. Data may be biased low.
- R-01 The Reporting Limit for this analyte has been raised to account for matrix interference.
- R-04 Reporting levels elevated due to dilution necessary for analysis.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.
- For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.
- Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

Apex Laboratories



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Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**

Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

APEX LABS
12232 S.W. Garden Place, Tigard, OR 97223
Phone: 503-718-2323 Fax: 503-718-0333

CHAIN OF CUSTODY

APEX LABS

Client: **ANCHOR QEA, LLC** Project Mgr: **JOHN RENDA** Project Name: **McCALL - FRONT AVE** Project # **130162-01.01.01**

Address: **6650 SW REDWOOD LN, SUITE 333** Phone: **503-670-1088** Fax: **670-1128** Email: **jrenda@anchorqea.com**

Submitted by:

Site Location: OR WA
Other:

SAMPLE ID

MOC-052510-1
-2
-3
-4
TRIP BLANK

LAB ID #

DATE

TIME

MATRIX

OF CONTAINERS

NWTPH-ACID

NWTPH-DX

NWTPH-GS

BTEX

8260 HMW VOCs

8260 HMV VOCs

8260 PCBs

8081 Chinc. Pest

HCRA Metals (8)

Priority Metals (13)

TCDF Metals (8)

1208-COLS

1208-Z

HOLD

4-methylphenol

DIBENZOFURAN (8270-D)

PHENOL (8270-D)

TSS (60.3)

ANALYSIS REQUEST

<input checked="" type="checkbox"/>	TCDF Metals (8)
<input checked="" type="checkbox"/>	1208-COLS
<input checked="" type="checkbox"/>	1208-Z
<input checked="" type="checkbox"/>	HOLD
<input checked="" type="checkbox"/>	4-methylphenol
<input checked="" type="checkbox"/>	DIBENZOFURAN (8270-D)
<input checked="" type="checkbox"/>	PHENOL (8270-D)
<input checked="" type="checkbox"/>	TSS (60.3)

Normal Turn Around Time (TAT) = 5-10 Business Days

TAT Requested (circle): 24 HR 48 HR 72 HR 4 DAY 5 DAY Other: _____

SPECIAL INSTRUCTIONS:

① TOTAL DISSOLVED - DISSOLVED BOTTLE HAS BEEN FIELD-FILTERED AND PRESERVED

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: **Timothy J. Stone** Date: **5/26/10**

Signature: *Timothy J. Stone* Printed Name: **TIMOTHY J. STONE**

Company: **ANCHOR QEA, LLC**

RECEIVED BY: **Lindsay Moran** Date: **5/26/10**

Signature: *Lindsay Moran* Printed Name: **Lindsay Moran**

Company: **Apex Labs**

RELINQUISHED BY: _____

Signature: _____

Printed Name: _____

Company: _____

RECEIVED BY: _____

Signature: _____

Printed Name: _____

Company: _____

Darwin Thomas

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: No
Project Manager: John Renda

Reported:
06/20/10 17:03

APEX LABS COOLER RECEIPT FORM

Client: Anchor (Dea), LLC Element WO#: A10 E258

Project/Project #: McCall - front Arc / 030162-01.01.01

Delivery info:

Date/Time Received: 5/26/10 @ 1139 By: Lindsay M.

Delivered by: Apex Courier Client FedEx UPS DHL Other

Courier/Client Name or Air Bill # _____

Cooler Inspection Inspected by: Lindsay M 5/26 @ 1200

Chain of Custody:

Included? Yes No Signed/Dated by Client? Yes No

Signed/Dated by Apex Personnel? Yes No

Coolers: No. of Coolers: 4

	Cooler #1	Cooler #2	Cooler #3	Cooler #4
Temperature (deg. C)	<u>0.4</u>	<u>1.9</u>	<u>6.0</u>	<u>5.3</u>
Received on Ice? (Y/N)	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>
Temp. Blanks? (Y/N)	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>
Ice Type: (Gel/Recd/Other)	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>
Condition:	<u>GOOD/melted</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>

5
0.4

Samples Inspection: Inspected by: COB @ 1200

All Samples Intact? Yes No Comments: _____

Bottle Labels/COCs agree? Yes No Comments: _____

Containers Appropriate for Analysis? Yes No Comments: _____

Do VOA Vials have Visible Headspace? Yes No NA

Comments: _____

Water Samples: pH Checked and Appropriate (except VOAs): Yes No NA

Comments: _____

Additional Information:

Apex Laboratories



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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Monday, June 28, 2010

John Renda
Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

RE: McCall Portland / 030162-01.01

Enclosed are the results of analyses for work order A10F066, which was received by the laboratory on 6/4/2010 at 1:20:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: dthomas@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland

6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**

Project Number: 030162-01.01
Project Manager: John Renda

Reported:

06/28/10 10:17

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MOC-060310-1	A10F066-01	Water	06/03/10 00:00	06/04/10 13:20
MOC-060310-2	A10F066-02	Water	06/03/10 00:00	06/04/10 13:20
MOC-060310-3	A10F066-03	Water	06/03/10 00:00	06/04/10 13:20
MOC-060310-4	A10F066-04	Water	06/03/10 00:00	06/04/10 13:20

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: McCall Portland
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Diesel Range (C10-C22) and Oil Range (C22-C40) Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MOC-060310-1 (A10F066-01) S-3			Matrix: Water		Batch: 1006126			
Diesel Range Organics	0.103	0.0376	0.0751	mg/L	1	06/08/10 19:49	NWTPH-Dx	F-05
Oil Range Organics	0.191	0.0751	0.188	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 92 %</i>		<i>Limits: 50-150 %</i>		"	"	"
MOC-060310-2 (A10F066-02) S-2			Matrix: Water		Batch: 1006126			
Diesel Range Organics	0.0790	0.0377	0.0755	mg/L	1	06/08/10 20:32	NWTPH-Dx	F-07
Oil Range Organics	0.694	0.0755	0.189	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		"	"	"
MOC-060310-3 (A10F066-03) S-1			Matrix: Water		Batch: 1006126			
Diesel Range Organics	0.0895	0.0379	0.0758	mg/L	1	06/08/10 21:16	NWTPH-Dx	F-07
Oil Range Organics	0.623	0.0758	0.190	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		"	"	"
MOC-060310-4 (A10F066-04) S-4			Matrix: Water		Batch: 1006126			
Diesel Range Organics	0.252	0.0381	0.0762	mg/L	1	06/08/10 21:59	NWTPH-Dx	A-01
Oil Range Organics	0.460	0.0762	0.190	"	"	"	"	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		"	"	"

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit						
MOC-060310-1 (A10F066-01) S-3			Matrix: Water		Batch: 1006104				
Gasoline Range Organics	ND	0.0500	0.100		mg/L	1	06/07/10 13:22	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 81 %</i>		<i>Limits: 50-150 %</i>		<i>"</i>		<i>"</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>98 %</i>		<i>Limits: 50-150 %</i>		<i>"</i>		<i>"</i>
MOC-060310-2 (A10F066-02) S-2			Matrix: Water		Batch: 1006104				
Gasoline Range Organics	ND	0.0500	0.100		mg/L	1	06/07/10 13:48	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 78 %</i>		<i>Limits: 50-150 %</i>		<i>"</i>		<i>"</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>97 %</i>		<i>Limits: 50-150 %</i>		<i>"</i>		<i>"</i>
MOC-060310-3 (A10F066-03) S-1			Matrix: Water		Batch: 1006104				
Gasoline Range Organics	ND	0.0500	0.100		mg/L	1	06/07/10 14:14	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 83 %</i>		<i>Limits: 50-150 %</i>		<i>"</i>		<i>"</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>99 %</i>		<i>Limits: 50-150 %</i>		<i>"</i>		<i>"</i>
MOC-060310-4 (A10F066-04) S-4			Matrix: Water		Batch: 1006104				
Gasoline Range Organics	ND	0.0500	0.100		mg/L	1	06/07/10 14:40	NWTPH-Gx	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>			<i>Recovery: 80 %</i>		<i>Limits: 50-150 %</i>		<i>"</i>		<i>"</i>
<i>1,4-Difluorobenzene (Sur)</i>			<i>98 %</i>		<i>Limits: 50-150 %</i>		<i>"</i>		<i>"</i>

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit						
MOC-060310-1 (A10F066-01) S-3			Matrix: Water		Batch: 1006114				C-07
Aroclor 1016	ND	0.0189	0.0377		ug/L	1	06/09/10 09:20	EPA 8082A	
Aroclor 1221	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1232	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1242	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1248	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1254	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1260	ND	0.0189	0.0377		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		Recovery: 64 %		Limits: 50-125 %		"	"	"	
<i>Decachlorobiphenyl (Surr)</i>		116 %		Limits: 55-130 %		"	"	"	Q-23
MOC-060310-2 (A10F066-02) S-2			Matrix: Water		Batch: 1006114				C-07
Aroclor 1016	ND	0.0189	0.0377		ug/L	1	06/09/10 09:35	EPA 8082A	
Aroclor 1221	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1232	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1242	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1248	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1254	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1260	ND	0.0189	0.0377		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		Recovery: 56 %		Limits: 50-125 %		"	"	"	
<i>Decachlorobiphenyl (Surr)</i>		108 %		Limits: 55-130 %		"	"	"	Q-23
MOC-060310-3 (A10F066-03) S-1			Matrix: Water		Batch: 1006114				C-07
Aroclor 1016	ND	0.0189	0.0377		ug/L	1	06/09/10 09:50	EPA 8082A	
Aroclor 1221	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1232	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1242	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1248	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1254	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1260	ND	0.0189	0.0377		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		Recovery: 58 %		Limits: 50-125 %		"	"	"	
<i>Decachlorobiphenyl (Surr)</i>		110 %		Limits: 55-130 %		"	"	"	Q-23
MOC-060310-4 (A10F066-04) S-4			Matrix: Water		Batch: 1006114				C-07
Aroclor 1016	ND	0.0189	0.0377		ug/L	1	06/09/10 10:05	EPA 8082A	
Aroclor 1221	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1232	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1242	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1248	ND	0.0189	0.0377		"	"	"	"	
Aroclor 1254	ND	0.0189	0.0377		"	"	"	"	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MOC-060310-4 (A10F066-04)			Matrix: Water		Batch: 1006114			C-07
Aroclor 1260	ND	0.0189	0.0377	ug/L	1	"	EPA 8082A	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 72 %</i>	<i>Limits: 50-125 %</i>	"	"	"	
<i>Decachlorobiphenyl (Surr)</i>			<i>118 %</i>	<i>Limits: 55-130 %</i>	"	"	"	Q-23

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-060310-1 (A10F066-01RE1)	S-3			Matrix: Water		Batch: 1006169			C-05
Aldrin	ND	0.00943	0.0283		ug/L	1	06/11/10 11:31	EPA 8081B	
alpha-BHC	ND	0.00943	0.0283		"	"	"	"	
beta-BHC	ND	0.0472	0.0472		"	"	"	"	R-01
delta-BHC	ND	0.00943	0.0283		"	"	"	"	
gamma-BHC (Lindane)	ND	0.00943	0.0283		"	"	"	"	
alpha-Chlordane	ND	0.00943	0.0283		"	"	"	"	
gamma-Chlordane	ND	0.00943	0.0283		"	"	"	"	
4,4'-DDD	ND	0.00943	0.0283		"	"	"	"	
4,4'-DDE	ND	0.00943	0.0283		"	"	"	"	
4,4'-DDT	ND	0.00943	0.0283		"	"	"	"	
Dieldrin	ND	0.00943	0.0283		"	"	"	"	
Endosulfan I	ND	0.00943	0.0283		"	"	"	"	
Endosulfan II	ND	0.00943	0.0283		"	"	"	"	
Endosulfan sulfate	ND	0.00943	0.0283		"	"	"	"	
Endrin	ND	0.00943	0.0283		"	"	"	"	
Endrin Aldehyde	ND	0.00943	0.0283		"	"	"	"	
Endrin ketone	ND	0.00943	0.0283		"	"	"	"	
Heptachlor	ND	0.00943	0.0283		"	"	"	"	
Heptachlor epoxide	ND	0.00943	0.0283		"	"	"	"	
Methoxychlor	ND	0.00943	0.0755		"	"	"	"	
Chlordane (Technical)	ND	0.0943	0.354		"	"	"	"	
Toxaphene (Total)	ND	0.0943	0.943		"	"	"	"	
cis-Nonachlor	ND	0.00943	0.0283		"	"	"	"	
2,4'-DDD	ND	0.00943	0.0283		"	"	"	"	
2,4'-DDE	ND	0.00943	0.0283		"	"	"	"	
2,4'-DDT	ND	0.00943	0.0283		"	"	"	"	
Hexachlorobenzene	ND	0.00943	0.0283		"	"	"	"	
Hexachlorobutadiene	ND	0.00943	0.0283		"	"	"	"	
Mirex	ND	0.00943	0.0283		"	"	"	"	
Oxychlordane	ND	0.00943	0.0283		"	"	"	"	
trans-Nonachlor	ND	0.00943	0.0283		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 57 %</i>	<i>Limits: 50-125 %</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>116 %</i>	<i>Limits: 55-130 %</i>					

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-060310-2 (A10F066-02RE1)	S-2			Matrix: Water		Batch: 1006169			C-05
Aldrin	ND	0.00943	0.0283		ug/L	1	06/11/10 11:46	EPA 8081B	
alpha-BHC	ND	0.00943	0.0283		"	"	"	"	
beta-BHC	ND	0.0283	0.0283		"	"	"	"	
delta-BHC	ND	0.0283	0.0283		"	"	"	"	
gamma-BHC (Lindane)	ND	0.00943	0.0283		"	"	"	"	
alpha-Chlordane	ND	0.00943	0.0283		"	"	"	"	
gamma-Chlordane	ND	0.00943	0.0283		"	"	"	"	
4,4'-DDD	ND	0.00943	0.0283		"	"	"	"	
4,4'-DDE	ND	0.00943	0.0283		"	"	"	"	
4,4'-DDT	ND	0.00943	0.0283		"	"	"	"	
Dieldrin	ND	0.00943	0.0283		"	"	"	"	
Endosulfan I	ND	0.00943	0.0283		"	"	"	"	
Endosulfan II	ND	0.00943	0.0283		"	"	"	"	
Endosulfan sulfate	ND	0.00943	0.0283		"	"	"	"	
Endrin	ND	0.00943	0.0283		"	"	"	"	
Endrin Aldehyde	ND	0.00943	0.0283		"	"	"	"	
Endrin ketone	ND	0.00943	0.0283		"	"	"	"	
Heptachlor	ND	0.00943	0.0283		"	"	"	"	
Heptachlor epoxide	ND	0.00943	0.0283		"	"	"	"	
Methoxychlor	ND	0.00943	0.0755		"	"	"	"	
Chlordane (Technical)	ND	0.0943	0.354		"	"	"	"	
Toxaphene (Total)	ND	0.0943	0.943		"	"	"	"	
cis-Nonachlor	ND	0.00943	0.0283		"	"	"	"	
2,4'-DDD	ND	0.00943	0.0283		"	"	"	"	
2,4'-DDE	ND	0.00943	0.0283		"	"	"	"	
2,4'-DDT	ND	0.00943	0.0283		"	"	"	"	
Hexachlorobenzene	ND	0.00943	0.0283		"	"	"	"	
Hexachlorobutadiene	ND	0.00943	0.0283		"	"	"	"	
Mirex	ND	0.00943	0.0283		"	"	"	"	
Oxychlordane	ND	0.00943	0.0283		"	"	"	"	
trans-Nonachlor	ND	0.00943	0.0283		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 54 %</i>	<i>Limits: 50-125 %</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>112 %</i>	<i>Limits: 55-130 %</i>					

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-060310-3 (A10F066-03RE1) S-1			Matrix: Water			Batch: 1006169			C-05
Aldrin	ND	0.00948	0.0284		ug/L	1	06/11/10 12:00	EPA 8081B	
alpha-BHC	ND	0.00948	0.0284		"	"	"	"	
beta-BHC	ND	0.0284	0.0284		"	"	"	"	
delta-BHC	ND	0.0284	0.0284		"	"	"	"	
gamma-BHC (Lindane)	ND	0.00948	0.0284		"	"	"	"	
alpha-Chlordane	ND	0.00948	0.0284		"	"	"	"	
gamma-Chlordane	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDT	ND	0.00948	0.0284		"	"	"	"	
Dieldrin	ND	0.00948	0.0284		"	"	"	"	
Endosulfan I	ND	0.00948	0.0284		"	"	"	"	
Endosulfan II	ND	0.00948	0.0284		"	"	"	"	
Endosulfan sulfate	ND	0.00948	0.0284		"	"	"	"	
Endrin	ND	0.00948	0.0284		"	"	"	"	
Endrin Aldehyde	ND	0.00948	0.0284		"	"	"	"	
Endrin ketone	ND	0.00948	0.0284		"	"	"	"	
Heptachlor	ND	0.00948	0.0284		"	"	"	"	
Heptachlor epoxide	ND	0.00948	0.0284		"	"	"	"	
Methoxychlor	ND	0.00948	0.0758		"	"	"	"	
Chlordane (Technical)	ND	0.0948	0.355		"	"	"	"	
Toxaphene (Total)	ND	0.0948	0.948		"	"	"	"	
cis-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDT	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobenzene	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobutadiene	ND	0.00948	0.0284		"	"	"	"	
Mirex	ND	0.00948	0.0284		"	"	"	"	
Oxychlordane	ND	0.00948	0.0284		"	"	"	"	
trans-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 54 %</i>	<i>Limits: 50-125 %</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>114 %</i>	<i>Limits: 55-130 %</i>					

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

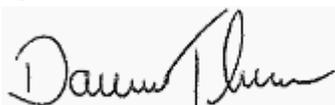
Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-060310-4 (A10F066-04RE1)	S-4			Matrix: Water		Batch: 1006169			C-05
Aldrin	ND	0.00948	0.0284		ug/L	1	06/11/10 12:15	EPA 8081B	
alpha-BHC	ND	0.00948	0.0284		"	"	"	"	
beta-BHC	ND	0.0284	0.0284		"	"	"	"	
delta-BHC	ND	0.0474	0.0474		"	"	"	"	R-01
gamma-BHC (Lindane)	ND	0.00948	0.0284		"	"	"	"	
alpha-Chlordane	ND	0.00948	0.0284		"	"	"	"	
gamma-Chlordane	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
4,4'-DDT	ND	0.0284	0.0284		"	"	"	"	
Dieldrin	ND	0.00948	0.0284		"	"	"	"	
Endosulfan I	ND	0.00948	0.0284		"	"	"	"	
Endosulfan II	ND	0.00948	0.0284		"	"	"	"	
Endosulfan sulfate	ND	0.00948	0.0284		"	"	"	"	
Endrin	ND	0.00948	0.0284		"	"	"	"	
Endrin Aldehyde	ND	0.00948	0.0284		"	"	"	"	
Endrin ketone	ND	0.00948	0.0284		"	"	"	"	
Heptachlor	ND	0.00948	0.0284		"	"	"	"	
Heptachlor epoxide	ND	0.00948	0.0284		"	"	"	"	
Methoxychlor	0.0204	0.00948	0.0758		"	"	"	"	J
Chlordane (Technical)	ND	0.0948	0.355		"	"	"	"	
Toxaphene (Total)	ND	0.0948	0.948		"	"	"	"	
cis-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDD	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDE	ND	0.00948	0.0284		"	"	"	"	
2,4'-DDT	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobenzene	ND	0.00948	0.0284		"	"	"	"	
Hexachlorobutadiene	ND	0.00948	0.0284		"	"	"	"	
Mirex	ND	0.00948	0.0284		"	"	"	"	
Oxychlordane	ND	0.00948	0.0284		"	"	"	"	
trans-Nonachlor	ND	0.00948	0.0284		"	"	"	"	
<i>Surrogate: 2,4,5,6-TCMX (Surr)</i>		<i>Recovery: 54 %</i>		<i>Limits: 50-125 %</i>		"	"	"	
<i>Decachlorobiphenyl (Surr)</i>		<i>112 %</i>		<i>Limits: 55-130 %</i>		"	"	"	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

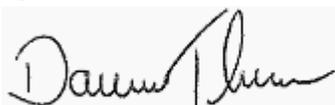
Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-060310-1 (A10F066-01)	S-3			Matrix: Water		Batch: 1006107			R-04
Benzo(g,h,i)perylene	ND	0.190	0.381		ug/L	20	06/09/10 18:24	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.190	0.381		"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.190	0.381		"	"	"	"	
MOC-060310-1 (A10F066-01RE1)				Matrix: Water		Batch: 1006107			R-04
Acenaphthene	ND	0.0190	0.0381		ug/L	2	06/10/10 12:42	EPA 8270D	
Acenaphthylene	ND	0.0190	0.0381		"	"	"	"	
Anthracene	ND	0.0190	0.0381		"	"	"	"	
Benz(a)anthracene	ND	0.0190	0.0381		"	"	"	"	
Benzo(a)pyrene	ND	0.0190	0.0381		"	"	"	"	
Benzo(b)fluoranthene	ND	0.0190	0.0381		"	"	"	"	
Benzo(k)fluoranthene	ND	0.0190	0.0381		"	"	"	"	
Chrysene	ND	0.0190	0.0381		"	"	"	"	
Fluoranthene	ND	0.0190	0.0381		"	"	"	"	
Fluorene	ND	0.0190	0.0381		"	"	"	"	
1-Methylnaphthalene	ND	0.0381	0.0762		"	"	"	"	
2-Methylnaphthalene	0.0387	0.0381	0.0762		"	"	"	"	J
Naphthalene	0.0386	0.0381	0.0762		"	"	"	"	J
Phenanthrene	ND	0.0381	0.0762		"	"	"	"	
Pyrene	ND	0.0190	0.0381		"	"	"	"	
Carbazole	ND	0.0190	0.0381		"	"	"	"	
Dibenzofuran	ND	0.0190	0.0381		"	"	"	"	
3+4-Methylphenol(s)	ND	0.476	0.952		"	"	"	"	
Bis(2-ethylhexyl)phthalate	2.17	0.952	1.90		"	"	"	"	
Butyl benzyl phthalate	ND	0.952	1.90		"	"	"	"	
Diethylphthalate	ND	0.952	1.90		"	"	"	"	
Dimethylphthalate	ND	0.952	1.90		"	"	"	"	
Di-n-butylphthalate	ND	0.952	1.90		"	"	"	"	
Di-n-octyl phthalate	ND	0.952	1.90		"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>				<i>Recovery: 73 %</i>					
<i>2-Fluorobiphenyl (Surr)</i>				<i>65 %</i>					
<i>Phenol-d6 (Surr)</i>				<i>25 %</i>					
<i>p-Terphenyl-d14 (Surr)</i>				<i>107 %</i>					
<i>2-Fluorophenol (Surr)</i>				<i>33 %</i>					
<i>2,4,6-Tribromophenol (Surr)</i>				<i>108 %</i>					
				<i>Limits: 35-120 %</i>					
				<i>Limits: 30-120 %</i>					
				<i>Limits: 10-120 %</i>					
				<i>Limits: 50-125 %</i>					
				<i>Limits: 15-120 %</i>					
				<i>Limits: 35-125 %</i>					

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-060310-2 (A10F066-02)			Matrix: Water		Batch: 1006107				R-04
Benzo(g,h,i)perylene	ND	0.190	0.381		ug/L	20	06/09/10 19:00	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.190	0.381		"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.190	0.381		"	"	"	"	
MOC-060310-2 (A10F066-02RE1)			Matrix: Water		Batch: 1006107				R-04
Acenaphthene	ND	0.0190	0.0381		ug/L	2	06/10/10 13:18	EPA 8270D	
Acenaphthylene	ND	0.0190	0.0381		"	"	"	"	
Anthracene	ND	0.0190	0.0381		"	"	"	"	
Benzo(a)anthracene	0.0376	0.0190	0.0381		"	"	"	"	J
Benzo(a)pyrene	0.0568	0.0190	0.0381		"	"	"	"	
Benzo(b)fluoranthene	0.0543	0.0190	0.0381		"	"	"	"	
Benzo(k)fluoranthene	0.0253	0.0190	0.0381		"	"	"	"	J
Chrysene	0.0506	0.0190	0.0381		"	"	"	"	
Fluoranthene	0.0743	0.0190	0.0381		"	"	"	"	
Fluorene	ND	0.0190	0.0381		"	"	"	"	
1-Methylnaphthalene	ND	0.0381	0.0762		"	"	"	"	
2-Methylnaphthalene	ND	0.0381	0.0762		"	"	"	"	
Naphthalene	ND	0.0381	0.0762		"	"	"	"	
Phenanthrene	0.0594	0.0381	0.0762		"	"	"	"	J
Pyrene	0.0766	0.0190	0.0381		"	"	"	"	
Carbazole	ND	0.0190	0.0381		"	"	"	"	
Dibenzofuran	ND	0.0190	0.0381		"	"	"	"	
3+4-Methylphenol(s)	ND	0.476	0.952		"	"	"	"	
Bis(2-ethylhexyl)phthalate	2.22	0.952	1.90		"	"	"	"	
Butyl benzyl phthalate	ND	0.952	1.90		"	"	"	"	
Diethylphthalate	ND	0.952	1.90		"	"	"	"	
Dimethylphthalate	ND	0.952	1.90		"	"	"	"	
Di-n-butylphthalate	ND	0.952	1.90		"	"	"	"	
Di-n-octyl phthalate	ND	0.952	1.90		"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 76 %</i>		<i>Limits: 35-120 %</i>		"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>66 %</i>		<i>Limits: 30-120 %</i>		"	"	"	
<i>Phenol-d6 (Surr)</i>		<i>25 %</i>		<i>Limits: 10-120 %</i>		"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>104 %</i>		<i>Limits: 50-125 %</i>		"	"	"	
<i>2-Fluorophenol (Surr)</i>		<i>41 %</i>		<i>Limits: 15-120 %</i>		"	"	"	
<i>2,4,6-Tribromophenol (Surr)</i>		<i>104 %</i>		<i>Limits: 35-125 %</i>		"	"	"	

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Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: 030162-01.01
Project Manager: John Renda

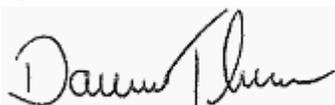
Reported:
06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit						
MOC-060310-3 (A10F066-03) S-1			Matrix: Water		Batch: 1006107				R-04
Benzo(g,h,i)perylene	ND	0.189	0.377		ug/L	20	06/09/10 19:37	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.189	0.377		"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.189	0.377		"	"	"	"	
MOC-060310-3 (A10F066-03RE1)			Matrix: Water		Batch: 1006107				R-04
Acenaphthene	ND	0.0189	0.0377		ug/L	2	06/10/10 13:53	EPA 8270D	
Acenaphthylene	ND	0.0189	0.0377		"	"	"	"	
Anthracene	ND	0.0189	0.0377		"	"	"	"	
Benz(a)anthracene	ND	0.0189	0.0377		"	"	"	"	
Benzo(a)pyrene	ND	0.0189	0.0377		"	"	"	"	
Benzo(b)fluoranthene	ND	0.0189	0.0377		"	"	"	"	
Benzo(k)fluoranthene	ND	0.0189	0.0377		"	"	"	"	
Chrysene	ND	0.0189	0.0377		"	"	"	"	
Fluoranthene	ND	0.0189	0.0377		"	"	"	"	
Fluorene	ND	0.0189	0.0377		"	"	"	"	
1-Methylnaphthalene	ND	0.0377	0.0755		"	"	"	"	
2-Methylnaphthalene	ND	0.0377	0.0755		"	"	"	"	
Naphthalene	0.0444	0.0377	0.0755		"	"	"	"	J
Phenanthrene	ND	0.0377	0.0755		"	"	"	"	
Pyrene	ND	0.0189	0.0377		"	"	"	"	
Carbazole	ND	0.0189	0.0377		"	"	"	"	
Dibenzofuran	ND	0.0189	0.0377		"	"	"	"	
3+4-Methylphenol(s)	ND	0.472	0.943		"	"	"	"	
Bis(2-ethylhexyl)phthalate	1.02	0.943	1.89		"	"	"	"	J
Butyl benzyl phthalate	ND	0.943	1.89		"	"	"	"	
Diethylphthalate	ND	0.943	1.89		"	"	"	"	
Dimethylphthalate	ND	0.943	1.89		"	"	"	"	
Di-n-butylphthalate	ND	0.943	1.89		"	"	"	"	
Di-n-octyl phthalate	ND	0.943	1.89		"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 84 %</i>		<i>Limits: 35-120 %</i>		"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>74 %</i>		<i>Limits: 30-120 %</i>		"	"	"	
<i>Phenol-d6 (Surr)</i>		<i>28 %</i>		<i>Limits: 10-120 %</i>		"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>104 %</i>		<i>Limits: 50-125 %</i>		"	"	"	
<i>2-Fluorophenol (Surr)</i>		<i>46 %</i>		<i>Limits: 15-120 %</i>		"	"	"	
<i>2,4,6-Tribromophenol (Surr)</i>		<i>109 %</i>		<i>Limits: 35-125 %</i>		"	"	"	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-060310-4 (A10F066-04)	S-4			Matrix: Water		Batch: 1006107			R-04
Benzo(g,h,i)perylene	ND	0.472	0.943		ug/L	50	06/09/10 20:14	EPA 8270D	
Dibenz(a,h)anthracene	ND	0.472	0.943		"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.472	0.943		"	"	"	"	
MOC-060310-4 (A10F066-04RE1)				Matrix: Water		Batch: 1006107			R-04
Acenaphthene	ND	0.0377	0.0755		ug/L	4	06/10/10 14:29	EPA 8270D	
Acenaphthylene	ND	0.0377	0.0755		"	"	"	"	
Anthracene	ND	0.0377	0.0755		"	"	"	"	
Benz(a)anthracene	ND	0.0377	0.0755		"	"	"	"	
Benzo(a)pyrene	ND	0.0377	0.0755		"	"	"	"	
Benzo(b)fluoranthene	ND	0.0377	0.0755		"	"	"	"	
Benzo(k)fluoranthene	ND	0.0377	0.0755		"	"	"	"	
Benzo(g,h,i)perylene	ND	0.0377	0.0755		"	"	"	"	
Chrysene	ND	0.0377	0.0755		"	"	"	"	
Dibenz(a,h)anthracene	ND	0.0377	0.0755		"	"	"	"	
Fluoranthene	ND	0.0377	0.0755		"	"	"	"	
Fluorene	ND	0.0377	0.0755		"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	0.0377	0.0755		"	"	"	"	
1-Methylnaphthalene	ND	0.0755	0.151		"	"	"	"	
2-Methylnaphthalene	ND	0.0755	0.151		"	"	"	"	
Naphthalene	ND	0.0755	0.151		"	"	"	"	
Phenanthrene	ND	0.0755	0.151		"	"	"	"	
Pyrene	0.0436	0.0377	0.0755		"	"	"	"	J
Carbazole	ND	0.0377	0.0755		"	"	"	"	
Dibenzofuran	ND	0.0377	0.0755		"	"	"	"	
3+4-Methylphenol(s)	ND	0.943	1.89		"	"	"	"	
Bis(2-ethylhexyl)phthalate	ND	1.89	3.77		"	"	"	"	
Butyl benzyl phthalate	ND	1.89	3.77		"	"	"	"	
Diethylphthalate	ND	1.89	3.77		"	"	"	"	
Dimethylphthalate	ND	1.89	3.77		"	"	"	"	
Di-n-butylphthalate	ND	1.89	3.77		"	"	"	"	
Di-n-octyl phthalate	ND	1.89	3.77		"	"	"	"	
<i>Surrogate: Nitrobenzene-d5 (Surr)</i>		<i>Recovery: 75 %</i>		<i>Limits: 35-120 %</i>		"	"	"	
<i>2-Fluorobiphenyl (Surr)</i>		<i>67 %</i>		<i>Limits: 30-120 %</i>		"	"	"	
<i>Phenol-d6 (Surr)</i>		<i>25 %</i>		<i>Limits: 10-120 %</i>		"	"	"	
<i>p-Terphenyl-d14 (Surr)</i>		<i>92 %</i>		<i>Limits: 50-125 %</i>		"	"	"	
<i>2-Fluorophenol (Surr)</i>		<i>41 %</i>		<i>Limits: 15-120 %</i>		"	"	"	
<i>2,4,6-Tribromophenol (Surr)</i>		<i>102 %</i>		<i>Limits: 35-125 %</i>		"	"	"	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-060310-1 (A10F066-01) S-3									
			Matrix: Water		Batch: 1006110				
Arsenic	0.811	0.500	2.00		ug/L	1	06/07/10 16:13	EPA 200.8	J
Cadmium	0.122	0.100	1.00		"	"	"	"	J
Chromium	1.98	0.200	2.00		"	"	"	"	J
Copper	33.8	0.300	4.00		"	"	"	"	
Lead	7.79	0.200	1.00		"	"	"	"	
Zinc	124	1.30	4.00		"	"	"	"	
MOC-060310-2 (A10F066-02) S-2									
			Matrix: Water		Batch: 1006110				
Arsenic	ND	0.500	2.00		ug/L	1	06/07/10 16:16	EPA 200.8	
Cadmium	ND	0.100	1.00		"	"	"	"	
Chromium	0.856	0.200	2.00		"	"	"	"	J
Copper	4.63	0.300	4.00		"	"	"	"	
Lead	0.900	0.200	1.00		"	"	"	"	J
Zinc	51.6	1.30	4.00		"	"	"	"	
MOC-060310-3 (A10F066-03) S-1									
			Matrix: Water		Batch: 1006110				
Arsenic	ND	0.500	2.00		ug/L	1	06/07/10 16:19	EPA 200.8	
Cadmium	ND	0.100	1.00		"	"	"	"	
Chromium	0.889	0.200	2.00		"	"	"	"	J
Copper	6.40	0.300	4.00		"	"	"	"	
Lead	1.34	0.200	1.00		"	"	"	"	
Zinc	229	1.30	4.00		"	"	"	"	
MOC-060310-4 (A10F066-04) S-4									
			Matrix: Water		Batch: 1006110				
Arsenic	0.744	0.500	2.00		ug/L	1	06/07/10 16:22	EPA 200.8	J
Cadmium	0.122	0.100	1.00		"	"	"	"	J
Chromium	1.02	0.200	2.00		"	"	"	"	J
Copper	12.1	0.300	4.00		"	"	"	"	
Lead	2.10	0.200	1.00		"	"	"	"	
Zinc	59.9	1.30	4.00		"	"	"	"	

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 Portland, OR 97224

Project: McCall Portland
 Project Number: 030162-01.01
 Project Manager: John Renda

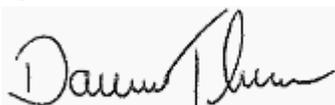
Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting		Units	Dilution	Date Analyzed	Method	Notes
			Limit	Matrix					
MOC-060310-1 (A10F066-01) S-3			Matrix: Water		Batch: 1006127				
Arsenic	ND	0.500	2.00		ug/L	1	06/08/10 14:47	EPA 200.8 (Diss)	
Cadmium	ND	0.100	1.00		"	"	"	"	
Chromium	0.844	0.200	2.00		"	"	"	"	J
Copper	16.5	0.300	4.00		"	"	"	"	
Lead	0.833	0.200	1.00		"	"	"	"	J
Zinc	81.4	1.30	4.00		"	"	"	"	
MOC-060310-2 (A10F066-02) S-2			Matrix: Water		Batch: 1006127				
Arsenic	ND	0.500	2.00		ug/L	1	06/08/10 17:18	EPA 200.8 (Diss)	
Cadmium	ND	0.100	1.00		"	"	"	"	
Chromium	0.689	0.200	2.00		"	"	"	"	J
Copper	3.19	0.300	4.00		"	"	"	"	J
Lead	ND	0.200	1.00		"	"	"	"	
Zinc	49.1	1.30	4.00		"	"	"	"	
MOC-060310-3 (A10F066-03) S-1			Matrix: Water		Batch: 1006127				
Arsenic	ND	0.500	2.00		ug/L	1	06/08/10 14:53	EPA 200.8 (Diss)	
Cadmium	ND	0.100	1.00		"	"	"	"	
Chromium	0.633	0.200	2.00		"	"	"	"	J
Copper	4.80	0.300	4.00		"	"	"	"	
Lead	ND	0.200	1.00		"	"	"	"	
Zinc	206	1.30	4.00		"	"	"	"	
MOC-060310-4 (A10F066-04) S-4			Matrix: Water		Batch: 1006127				
Arsenic	ND	0.500	2.00		ug/L	1	06/08/10 14:56	EPA 200.8 (Diss)	
Cadmium	ND	0.100	1.00		"	"	"	"	
Chromium	0.711	0.200	2.00		"	"	"	"	J
Copper	8.42	0.300	4.00		"	"	"	"	
Lead	0.222	0.200	1.00		"	"	"	"	J
Zinc	40.4	1.30	4.00		"	"	"	"	

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Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MOC-060310-1 (A10F066-01) S-3			Matrix: Water		Batch: 1006112			
Total Suspended Solids	5.60	1.00	1.00	mg/L	1	06/07/10 17:25	SM 2540 D	
MOC-060310-2 (A10F066-02) S-2			Matrix: Water		Batch: 1006112			
Total Suspended Solids	8.46	1.28	1.28	mg/L	1	06/07/10 17:25	SM 2540 D	
MOC-060310-3 (A10F066-03) S-1			Matrix: Water		Batch: 1006112			
Total Suspended Solids	6.57	1.43	1.43	mg/L	1	06/07/10 17:25	SM 2540 D	
MOC-060310-4 (A10F066-04) S-4			Matrix: Water		Batch: 1006112			
Total Suspended Solids	15.3	1.39	1.39	mg/L	1	06/07/10 17:25	SM 2540 D	

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Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

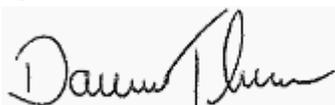
Reported:
 06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel Range (C10-C22) and Oil Range (C22-C40) Hydrocarbons by NWTPH-Dx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006126 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (1006126-BLK1)						Prepared: 06/08/10 09:12 Analyzed: 06/08/10 18:44						
NWTPH-Dx												
Diesel Range Organics	ND	0.0400	0.0800	mg/L	1	---	---	---	---	---	---	
Oil Range Organics	ND	0.0800	0.200	"	"	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 89 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (1006126-BS1)						Prepared: 06/08/10 09:12 Analyzed: 06/08/10 19:05						
NWTPH-Dx												
Diesel Range Organics	0.510	0.0400	0.0800	mg/L	1	0.500	---	102	70-130%	---	---	
Oil Range Organics	0.529	0.0800	0.200	"	"	"	---	106	"	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (1006126-BSD1)						Prepared: 06/08/10 09:12 Analyzed: 06/08/10 19:27						
NWTPH-Dx												
Diesel Range Organics	0.489	0.0400	0.0800	mg/L	1	0.500	---	98	70-130%	4	30%	
Oil Range Organics	0.513	0.0800	0.200	"	"	"	---	103	"	3	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 96 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						

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Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

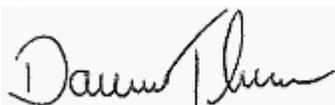
Reported:
 06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006104 - EPA 5030B						Water						
Blank (1006104-BLK1)						Prepared: 06/07/10 09:00 Analyzed: 06/07/10 12:57						
NWTPH-Gx												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	---	---	---	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 77 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>91 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (1006104-BS2)						Prepared: 06/07/10 09:00 Analyzed: 06/07/10 12:30						
NWTPH-Gx												
Gasoline Range Organics	0.550	0.0500	0.100	mg/L	1	0.500	---	110	70-130%	---	---	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 81 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>100 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (1006104-DUP1)						Prepared: 06/07/10 09:00 Analyzed: 06/07/10 15:06						
QC Source Sample: MOC-060310-4 (A10F066-04)												
NWTPH-Gx												
Gasoline Range Organics	ND	0.0500	0.100	mg/L	1	---	ND	---	---	---	30%	---
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 84 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>101 %</i>		<i>50-150 %</i>		<i>"</i>						

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 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006114 - EPA 3510C (Neutral pH)						Water						
Blank (1006114-BLK1)						Prepared: 06/07/10 12:49 Analyzed: 06/09/10 08:20						C-07
EPA 8082A												
Aroclor 1016	ND	0.0100	0.0200	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 72 %</i>		<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>103 %</i>		<i>55-130 %</i>		<i>"</i>		<i>Q-23</i>			
LCS (1006114-BS1)						Prepared: 06/07/10 12:49 Analyzed: 06/09/10 08:35						C-07
EPA 8082A												
Aroclor 1016	0.571	0.0100	0.0200	ug/L	1	0.625	---	91	40-140%	---	---	
Aroclor 1260	0.723	0.0100	0.0200	"	"	"	---	116	60-130%	---	---	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 76 %</i>		<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>119 %</i>		<i>55-130 %</i>		<i>"</i>		<i>Q-23</i>			
LCS Dup (1006114-BSD1)						Prepared: 06/07/10 12:49 Analyzed: 06/09/10 08:50						C-07, Q-19
EPA 8082A												
Aroclor 1016	0.560	0.0100	0.0200	ug/L	1	0.625	---	90	40-140%	2	25%	
Aroclor 1260	0.689	0.0100	0.0200	"	"	"	---	110	60-130%	5	25%	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>			<i>Recovery: 77 %</i>		<i>Limits: 50-125 %</i>		<i>Dilution: 1x</i>					
<i>Decachlorobiphenyl (Surr)</i>			<i>123 %</i>		<i>55-130 %</i>		<i>"</i>		<i>Q-23</i>			

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 Project Manager: John Renda

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 06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006169 - EPA 3510C (Neutral pH)/3640A (GPC)						Water						
Blank (1006169-BLK1)						Prepared: 06/09/10 09:34 Analyzed: 06/11/10 10:19						C-05
EPA 8081B												
Aldrin	ND	0.0100	0.0300	ug/L	1	---	---	---	---	---	---	
alpha-BHC	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
beta-BHC	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
delta-BHC	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
gamma-BHC (Lindane)	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
alpha-Chlordane	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
gamma-Chlordane	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
4,4'-DDD	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
4,4'-DDE	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
4,4'-DDT	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Dieldrin	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endosulfan I	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endosulfan II	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endosulfan sulfate	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endrin	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endrin Aldehyde	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Endrin ketone	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Heptachlor	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Heptachlor epoxide	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Methoxychlor	ND	0.0100	0.0800	"	"	---	---	---	---	---	---	
Chlordane (Technical)	ND	0.100	0.375	"	"	---	---	---	---	---	---	
Toxaphene (Total)	ND	0.100	1.00	"	"	---	---	---	---	---	---	
cis-Nonachlor	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
2,4'-DDD	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
2,4'-DDE	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
2,4'-DDT	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Hexachlorobenzene	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Mirex	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
Oxychlordane	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	
trans-Nonachlor	ND	0.0100	0.0300	"	"	---	---	---	---	---	---	

Surr: 2,4,5,6-TCMX (Surr)

Recovery: 55 %

Limits: 50-125 %

Dilution: 1x

Decachlorobiphenyl (Surr)

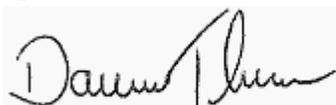
105 %

55-130 %

"

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

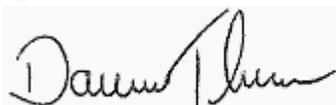
Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006169 - EPA 3510C (Neutral pH)/3640A (GPC)						Water						
LCS (1006169-BS1)						Prepared: 06/09/10 09:34 Analyzed: 06/11/10 10:34						C-05
EPA 8081B												
Aldrin	1.50	0.0100	0.0300	ug/L	1	2.00	---	75	25-140%	---	---	
alpha-BHC	1.49	0.0100	0.0300	"	"	"	---	74	60-130%	---	---	
beta-BHC	1.59	0.0100	0.0300	"	"	"	---	80	65-125%	---	---	
delta-BHC	1.92	0.0100	0.0300	"	"	"	---	96	45-135%	---	---	
gamma-BHC (Lindane)	1.60	0.0100	0.0300	"	"	"	---	80	25-135%	---	---	
alpha-Chlordane	1.85	0.0100	0.0300	"	"	"	---	92	65-125%	---	---	
gamma-Chlordane	1.91	0.0100	0.0300	"	"	"	---	95	60-125%	---	---	
4,4'-DDD	2.20	0.0100	0.0300	"	"	"	---	110	25-150%	---	---	
4,4'-DDE	2.00	0.0100	0.0300	"	"	"	---	100	35-140%	---	---	
4,4'-DDT	2.73	0.0100	0.0300	"	"	"	---	136	45-140%	---	---	
Dieldrin	2.13	0.0100	0.0300	"	"	"	---	106	60-130%	---	---	
Endosulfan I	1.99	0.0100	0.0300	"	"	"	---	99	50-110%	---	---	
Endosulfan II	2.43	0.0100	0.0300	"	"	"	---	122	30-130%	---	---	
Endosulfan sulfate	2.51	0.0100	0.0300	"	"	"	---	125	55-135%	---	---	
Endrin	2.33	0.0100	0.0300	"	"	"	---	116	"	---	---	
Endrin Aldehyde	2.06	0.0100	0.0300	"	"	"	---	103	"	---	---	
Endrin ketone	2.51	0.0100	0.0300	"	"	"	---	125	75-125%	---	---	
Heptachlor	1.66	0.0100	0.0300	"	"	"	---	83	40-130%	---	---	
Heptachlor epoxide	1.85	0.0100	0.0300	"	"	"	---	92	60-130%	---	---	
Methoxychlor	2.58	0.0100	0.0800	"	"	"	---	129	55-150%	---	---	

Surr: 2,4,5,6-TCMX (Surr) Recovery: 53 % Limits: 50-125 % Dilution: 1x
 Decachlorobiphenyl (Surr) 113 % 55-130 % "

LCS (1006169-BS2)						Prepared: 06/09/10 09:34 Analyzed: 06/11/10 11:02						C-05
EPA 8081B												
cis-Nonachlor	2.55	0.0100	0.0300	ug/L	1	2.53	---	101	50-150%	---	---	
2,4'-DDD	2.37	0.0100	0.0300	"	"	2.45	---	97	30-135%	---	---	
2,4'-DDE	2.16	0.0100	0.0300	"	"	2.42	---	89	50-140%	---	---	
2,4'-DDT	2.85	0.0100	0.0300	"	"	2.44	---	117	45-140%	---	---	
Hexachlorobenzene	1.96	0.0100	0.0300	"	"	"	---	80	50-150%	---	---	
Hexachlorobutadiene	1.44	0.0100	0.0300	"	"	2.41	---	60	"	---	---	
Mirex	2.52	0.0100	0.0300	"	"	2.60	---	97	"	---	---	
Oxychlordane	2.11	0.0100	0.0300	"	"	2.48	---	85	"	---	---	
trans-Nonachlor	2.24	0.0100	0.0300	"	"	2.46	---	91	"	---	---	

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

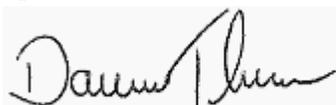
QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006169 - EPA 3510C (Neutral pH)/3640A (GPC)						Water						
LCS (1006169-BS2)						Prepared: 06/09/10 09:34 Analyzed: 06/11/10 11:02						C-05
<i>Surr: 2,4,5,6-TCMX (Surr)</i>		Recovery: 57 %		Limits: 50-125 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		110 %		55-130 %		"						
LCS Dup (1006169-BSD1)						Prepared: 06/09/10 09:34 Analyzed: 06/11/10 10:48						C-05, Q-19
EPA 8081B												
Aldrin	1.68	0.0100	0.0300	ug/L	1	2.00	---	84	25-140%	11	25%	
alpha-BHC	1.55	0.0100	0.0300	"	"	"	---	77	60-130%	4	25%	
beta-BHC	1.67	0.0100	0.0300	"	"	"	---	84	65-125%	5	25%	
delta-BHC	2.00	0.0100	0.0300	"	"	"	---	100	45-135%	4	25%	
gamma-BHC (Lindane)	1.70	0.0100	0.0300	"	"	"	---	85	25-135%	6	25%	
alpha-Chlordane	1.92	0.0100	0.0300	"	"	"	---	96	65-125%	4	25%	
gamma-Chlordane	1.98	0.0100	0.0300	"	"	"	---	99	60-125%	4	25%	
4,4'-DDD	2.18	0.0100	0.0300	"	"	"	---	109	25-150%	1	25%	
4,4'-DDE	2.05	0.0100	0.0300	"	"	"	---	102	35-140%	2	25%	
4,4'-DDT	2.73	0.0100	0.0300	"	"	"	---	137	45-140%	0.2	25%	
Dieldrin	2.18	0.0100	0.0300	"	"	"	---	109	60-130%	2	25%	
Endosulfan I	2.02	0.0100	0.0300	"	"	"	---	101	50-110%	2	25%	
Endosulfan II	2.43	0.0100	0.0300	"	"	"	---	122	30-130%	0.02	25%	
Endosulfan sulfate	2.53	0.0100	0.0300	"	"	"	---	126	55-135%	0.7	25%	
Endrin	2.32	0.0100	0.0300	"	"	"	---	116	"	0.5	25%	
Endrin Aldehyde	2.31	0.0100	0.0300	"	"	"	---	115	"	11	25%	
Endrin ketone	2.48	0.0100	0.0300	"	"	"	---	124	75-125%	1	25%	
Heptachlor	1.78	0.0100	0.0300	"	"	"	---	89	40-130%	7	25%	
Heptachlor epoxide	1.93	0.0100	0.0300	"	"	"	---	96	60-130%	4	25%	
Methoxychlor	2.56	0.0100	0.0800	"	"	"	---	128	55-150%	0.7	25%	
<i>Surr: 2,4,5,6-TCMX (Surr)</i>		Recovery: 58 %		Limits: 50-125 %		Dilution: 1x						
Decachlorobiphenyl (Surr)		114 %		55-130 %		"						
LCS Dup (1006169-BSD2)						Prepared: 06/09/10 09:34 Analyzed: 06/11/10 11:17						C-05, Q-19
EPA 8081B												
cis-Nonachlor	2.50	0.0100	0.0300	ug/L	1	2.53	---	99	50-150%	2	25%	
2,4'-DDD	2.39	0.0100	0.0300	"	"	2.45	---	98	30-135%	0.9	25%	
2,4'-DDE	2.17	0.0100	0.0300	"	"	2.42	---	90	50-140%	0.6	25%	
2,4'-DDT	2.82	0.0100	0.0300	"	"	2.44	---	115	45-140%	1	25%	
Hexachlorobenzene	1.95	0.0100	0.0300	"	"	"	---	80	50-150%	0.6	25%	
Hexachlorobutadiene	1.32	0.0100	0.0300	"	"	2.41	---	55	"	9	25%	

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Anchor Environmental, LLC Portland
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 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

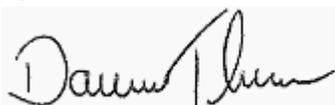
QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006169 - EPA 3510C (Neutral pH)/3640A (GPC)						Water						
LCS Dup (1006169-BSD2)						Prepared: 06/09/10 09:34		Analyzed: 06/11/10 11:17		C-05, Q-19		
Mirex	2.45	0.0100	0.0300	ug/L	"	2.60	---	94	"	3	25%	
Oxychlorane	2.12	0.0100	0.0300	"	"	2.48	---	85	"	0.5	25%	
trans-Nonachlor	2.28	0.0100	0.0300	"	"	2.46	---	93	"	1	25%	

Surr: 2,4,5,6-TCMX (Surr) Recovery: 51 % Limits: 50-125 % Dilution: 1x
 Decachlorobiphenyl (Surr) 105 % 55-130 % "

Apex Laboratories



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Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: 030162-01.01
Project Manager: John Renda

Reported:
06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006107 - EPA 3510C (Acid Extraction)						Water						
Blank (1006107-BLK2)						Prepared: 06/07/10 09:06 Analyzed: 06/09/10 15:58						
EPA 8270D												
Acenaphthene	ND	0.0100	0.0200	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Anthracene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Benzo(b+k)fluoranthene(s)	ND	0.0200	0.0400	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Chrysene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Fluoranthene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Fluorene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	0.0200	0.0400	"	"	---	---	---	---	---	---	
Naphthalene	ND	0.0200	0.0400	"	"	---	---	---	---	---	---	
Phenanthrene	ND	0.0200	0.0400	"	"	---	---	---	---	---	---	
Pyrene	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	0.0100	0.0200	"	"	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	0.250	0.500	"	"	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Diethylphthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Dimethylphthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Di-n-butylphthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	0.500	1.00	"	"	---	---	---	---	---	---	

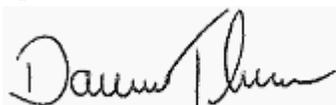
<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>Recovery: 76 %</i>	<i>Limits: 35-120 %</i>	<i>Dilution: 1x</i>
<i>2-Fluorobiphenyl (Surr)</i>	<i>82 %</i>	<i>30-120 %</i>	<i>"</i>
<i>Phenol-d6 (Surr)</i>	<i>23 %</i>	<i>10-120 %</i>	<i>"</i>
<i>p-Terphenyl-d14 (Surr)</i>	<i>109 %</i>	<i>50-125 %</i>	<i>"</i>
<i>2-Fluorophenol (Surr)</i>	<i>38 %</i>	<i>15-120 %</i>	<i>"</i>
<i>2,4,6-Tribromophenol (Surr)</i>	<i>84 %</i>	<i>35-125 %</i>	<i>"</i>

LCS (1006107-BS2)

Prepared: 06/07/10 09:06 Analyzed: 06/09/10 16:34

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: 030162-01.01
Project Manager: John Renda

Reported:
06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006107 - EPA 3510C (Acid Extraction)						Water						
LCS (1006107-BS2)						Prepared: 06/07/10 09:06 Analyzed: 06/09/10 16:34						
EPA 8270D												
Acenaphthene	1.44	0.0100	0.0200	ug/L	1	2.00	---	72	45-120%	---	---	
Acenaphthylene	1.46	0.0100	0.0200	"	"	"	---	73	50-120%	---	---	
Anthracene	1.62	0.0100	0.0200	"	"	"	---	81	55-120%	---	---	
Benz(a)anthracene	1.84	0.0100	0.0200	"	"	"	---	92	"	---	---	
Benzo(a)pyrene	1.87	0.0100	0.0200	"	"	"	---	94	"	---	---	
Benzo(b)fluoranthene	1.75	0.0100	0.0200	"	"	"	---	87	45-120%	---	---	
Benzo(k)fluoranthene	1.70	0.0100	0.0200	"	"	"	---	85	45-125%	---	---	
Benzo(b+k)fluoranthene(s)	3.68	0.0200	0.0400	"	"	4.00	---	92	45-120%	---	---	
Benzo(g,h,i)perylene	1.87	0.0100	0.0200	"	"	2.00	---	93	40-125%	---	---	
Chrysene	1.79	0.0100	0.0200	"	"	"	---	90	55-120%	---	---	
Dibenz(a,h)anthracene	1.80	0.0100	0.0200	"	"	"	---	90	40-125%	---	---	
Fluoranthene	1.79	0.0100	0.0200	"	"	"	---	89	55-120%	---	---	
Fluorene	1.59	0.0100	0.0200	"	"	"	---	80	50-120%	---	---	
Indeno(1,2,3-cd)pyrene	1.85	0.0100	0.0200	"	"	"	---	92	45-120%	---	---	
2-Methylnaphthalene	1.44	0.0200	0.0400	"	"	"	---	72	"	---	---	
Naphthalene	1.42	0.0200	0.0400	"	"	"	---	71	40-120%	---	---	
Phenanthrene	1.57	0.0200	0.0400	"	"	"	---	78	50-120%	---	---	
Pyrene	1.74	0.0100	0.0200	"	"	"	---	87	45-120%	---	---	
Dibenzofuran	1.50	0.0100	0.0200	"	"	"	---	75	55-120%	---	---	
3+4-Methylphenol(s)	1.07	0.250	0.500	"	"	"	---	54	30-120%	---	---	
Pentachlorophenol (PCP)	1.67	0.250	0.500	"	"	"	---	84	40-120%	---	---	
Bis(2-ethylhexyl)phthalate	4.20	0.500	1.00	"	"	4.00	---	105	40-125%	---	---	
Butyl benzyl phthalate	3.82	0.500	1.00	"	"	"	---	96	45-125%	---	---	
Diethylphthalate	3.89	0.500	1.00	"	"	"	---	97	40-120%	---	---	
Dimethylphthalate	3.63	0.500	1.00	"	"	"	---	91	25-120%	---	---	
Di-n-butylphthalate	4.51	0.500	1.00	"	"	"	---	113	55-120%	---	---	
Di-n-octyl phthalate	3.40	0.500	1.00	"	"	"	---	85	35-130%	---	---	

<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>Recovery: 78 %</i>	<i>Limits: 35-120 %</i>	<i>Dilution: 1x</i>
<i>2-Fluorobiphenyl (Surr)</i>	<i>73 %</i>	<i>30-120 %</i>	<i>"</i>
<i>Phenol-d6 (Surr)</i>	<i>23 %</i>	<i>10-120 %</i>	<i>"</i>
<i>p-Terphenyl-d14 (Surr)</i>	<i>98 %</i>	<i>50-125 %</i>	<i>"</i>
<i>2-Fluorophenol (Surr)</i>	<i>40 %</i>	<i>15-120 %</i>	<i>"</i>
<i>2,4,6-Tribromophenol (Surr)</i>	<i>86 %</i>	<i>35-125 %</i>	<i>"</i>

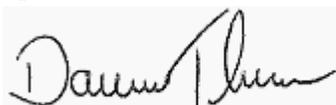
LCS Dup (1006107-BS2)

Prepared: 06/07/10 09:06 Analyzed: 06/09/10 17:11

Q-19

Apex Laboratories

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Darwin Thomas, Business Development Director

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6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**
Project Number: 030162-01.01
Project Manager: John Renda

Reported:
06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

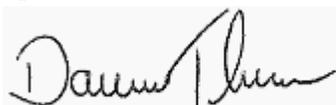
Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006107 - EPA 3510C (Acid Extraction)						Water						
LCS Dup (1006107-BSD2)						Prepared: 06/07/10 09:06 Analyzed: 06/09/10 17:11						Q-19
EPA 8270D												
Acenaphthene	1.58	0.0100	0.0200	ug/L	1	2.00	---	79	45-120%	9	30%	
Acenaphthylene	1.62	0.0100	0.0200	"	"	"	---	81	50-120%	10	30%	
Anthracene	1.79	0.0100	0.0200	"	"	"	---	89	55-120%	10	30%	
Benz(a)anthracene	1.97	0.0100	0.0200	"	"	"	---	99	"	7	30%	
Benzo(a)pyrene	2.01	0.0100	0.0200	"	"	"	---	101	"	7	30%	
Benzo(b)fluoranthene	1.89	0.0100	0.0200	"	"	"	---	95	45-120%	8	30%	
Benzo(k)fluoranthene	1.81	0.0100	0.0200	"	"	"	---	91	45-125%	7	30%	
Benzo(b+k)fluoranthene(s)	3.95	0.0200	0.0400	"	"	4.00	---	99	45-120%	7	30%	
Benzo(g,h,i)perylene	2.02	0.0100	0.0200	"	"	2.00	---	101	40-125%	8	30%	
Chrysene	1.93	0.0100	0.0200	"	"	"	---	96	55-120%	7	30%	
Dibenz(a,h)anthracene	1.91	0.0100	0.0200	"	"	"	---	96	40-125%	6	30%	
Fluoranthene	2.00	0.0100	0.0200	"	"	"	---	100	55-120%	11	30%	
Fluorene	1.72	0.0100	0.0200	"	"	"	---	86	50-120%	7	30%	
Indeno(1,2,3-cd)pyrene	1.96	0.0100	0.0200	"	"	"	---	98	45-120%	6	30%	
2-Methylnaphthalene	1.53	0.0200	0.0400	"	"	"	---	76	"	6	30%	
Naphthalene	1.51	0.0200	0.0400	"	"	"	---	76	40-120%	7	30%	
Phenanthrene	1.73	0.0200	0.0400	"	"	"	---	87	50-120%	10	30%	
Pyrene	1.94	0.0100	0.0200	"	"	"	---	97	45-120%	11	30%	
Dibenzofuran	1.63	0.0100	0.0200	"	"	"	---	82	55-120%	8	30%	
3+4-Methylphenol(s)	1.12	0.250	0.500	"	"	"	---	56	30-120%	5	30%	
Pentachlorophenol (PCP)	1.86	0.250	0.500	"	"	"	---	93	40-120%	11	30%	
Bis(2-ethylhexyl)phthalate	4.38	0.500	1.00	"	"	4.00	---	109	40-125%	4	30%	
Butyl benzyl phthalate	4.06	0.500	1.00	"	"	"	---	101	45-125%	6	30%	
Diethylphthalate	4.16	0.500	1.00	"	"	"	---	104	40-120%	7	30%	
Dimethylphthalate	3.83	0.500	1.00	"	"	"	---	96	25-120%	5	30%	
Di-n-butylphthalate	4.91	0.500	1.00	"	"	"	---	123	55-120%	8	30%	Q-29
Di-n-octyl phthalate	3.64	0.500	1.00	"	"	"	---	91	35-130%	7	30%	

Surr: Nitrobenzene-d5 (Surr)	Recovery: 74 %	Limits: 35-120 %	Dilution: 1x
2-Fluorobiphenyl (Surr)	80 %	30-120 %	"
Phenol-d6 (Surr)	24 %	10-120 %	"
p-Terphenyl-d14 (Surr)	99 %	50-125 %	"
2-Fluorophenol (Surr)	40 %	15-120 %	"
2,4,6-Tribromophenol (Surr)	93 %	35-125 %	"

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 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

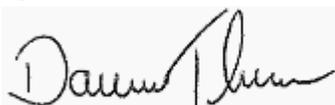
Reported:
 06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006110 - EPA 3015A												
Water												
Blank (1006110-BLK1)												
						Prepared: 06/07/10 10:01		Analyzed: 06/07/10 15:02				
EPA 200.8												
Arsenic	ND	0.500	2.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	0.100	1.00	"	"	---	---	---	---	---	---	
Chromium	ND	0.200	2.00	"	"	---	---	---	---	---	---	
Copper	ND	0.300	4.00	"	"	---	---	---	---	---	---	
Lead	ND	0.200	1.00	"	"	---	---	---	---	---	---	
Zinc	ND	1.30	4.00	"	"	---	---	---	---	---	---	
LCS (1006110-BS1)												
						Prepared: 06/07/10 10:01		Analyzed: 06/07/10 15:05				
EPA 200.8												
Arsenic	53.8	0.500	2.00	ug/L	1	55.6	---	97	85-115%	---	---	
Cadmium	55.3	0.100	1.00	"	"	"	---	100	"	---	---	
Chromium	50.0	0.200	2.00	"	"	"	---	90	"	---	---	
Copper	55.8	0.300	4.00	"	"	"	---	100	"	---	---	
Lead	54.8	0.200	1.00	"	"	"	---	99	"	---	---	
Zinc	54.1	1.30	4.00	"	"	"	---	97	"	---	---	
Duplicate (1006110-DUP1)												
						Prepared: 06/07/10 10:01		Analyzed: 06/07/10 15:35				
QC Source Sample: Other (A10F014-02)												
EPA 200.8												
Arsenic	10.1	5.00	20.0	ug/L	10	---	9.89	---	---	2	20%	J
Cadmium	ND	1.00	10.0	"	"	---	ND	---	---		20%	
Chromium	26.8	2.00	20.0	"	"	---	25.9	---	---	3	20%	
Copper	16.1	3.00	40.0	"	"	---	14.6	---	---	10	20%	J
Lead	6.67	2.00	10.0	"	"	---	6.44	---	---	3	20%	J
Zinc	173	13.0	40.0	"	"	---	176	---	---	2	20%	
Matrix Spike (1006110-MS1)												
						Prepared: 06/07/10 10:01		Analyzed: 06/07/10 15:38				
QC Source Sample: Other (A10F014-02)												
EPA 200.8												
Arsenic	68.9	5.00	20.0	ug/L	10	55.6	9.89	106	70-130%	---	---	
Cadmium	55.6	1.00	10.0	"	"	"	ND	100	"	---	---	
Chromium	79.3	2.00	20.0	"	"	"	25.9	96	"	---	---	
Copper	72.4	3.00	40.0	"	"	"	14.6	104	"	---	---	
Lead	57.7	2.00	10.0	"	"	"	6.44	92	"	---	---	
Zinc	221	13.0	40.0	"	"	"	176	82	"	---	---	

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006110 - EPA 3015A						Water						
Matrix Spike (1006110-MS2)						Prepared: 06/07/10 10:01 Analyzed: 06/07/10 16:51						
QC Source Sample: Other (A10F067-01)												
EPA 200.8												
Arsenic	57.8	2.50	10.0	ug/L	5	55.6	4.28	96	70-130%	---	---	
Cadmium	57.1	0.500	5.00	"	"	"	2.07	99	"	---	---	
Chromium	63.4	1.00	10.0	"	"	"	13.5	90	"	---	---	
Copper	158	1.50	20.0	"	"	"	87.7	127	"	---	---	
Lead	114	1.00	5.00	"	"	"	60.5	96	"	---	---	
Zinc	1530	6.50	20.0	"	"	"	1490	70	"	---	---	

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Project: **McCall Portland**
Project Number: 030162-01.01
Project Manager: John Renda

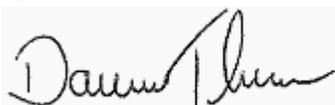
Reported:
06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006127 - EPA 3015A - Dissolved						Water						
Blank (1006127-BLK1)						Prepared: 06/08/10 09:33 Analyzed: 06/08/10 13:48						
EPA 200.8 (Diss)												
Arsenic	ND	0.500	2.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	0.100	1.00	"	"	---	---	---	---	---	---	
Chromium	0.367	0.200	2.00	"	"	---	---	---	---	---	---	J
Copper	ND	0.300	4.00	"	"	---	---	---	---	---	---	
Lead	ND	0.200	1.00	"	"	---	---	---	---	---	---	
Zinc	ND	1.30	4.00	"	"	---	---	---	---	---	---	
LCS (1006127-BS1)						Prepared: 06/08/10 09:33 Analyzed: 06/08/10 13:51						
EPA 200.8 (Diss)												
Arsenic	55.0	0.500	2.00	ug/L	1	55.6	---	99	85-115%	---	---	
Cadmium	57.0	0.100	1.00	"	"	"	---	103	"	---	---	
Chromium	55.0	0.200	2.00	"	"	"	---	99	"	---	---	
Copper	58.6	0.300	4.00	"	"	"	---	106	"	---	---	
Lead	54.3	0.200	1.00	"	"	"	---	98	"	---	---	
Zinc	54.5	1.30	4.00	"	"	"	---	98	"	---	---	
Duplicate (1006127-DUP1)						Prepared: 06/08/10 09:33 Analyzed: 06/08/10 14:05						
QC Source Sample: Other (A10F019-02)												
EPA 200.8 (Diss)												
Arsenic	ND	0.500	2.00	ug/L	1	---	ND	---	---	---	20%	
Cadmium	ND	0.100	1.00	"	"	---	ND	---	---	---	20%	
Chromium	0.511	0.200	2.00	"	"	---	0.544	---	---	6	20%	J
Copper	1.79	0.300	4.00	"	"	---	1.86	---	---	4	20%	J
Lead	3.98	0.200	1.00	"	"	---	3.99	---	---	0.3	20%	
Zinc	12.1	1.30	4.00	"	"	---	14.6	---	---	19	20%	
Matrix Spike (1006127-MS1)						Prepared: 06/08/10 09:33 Analyzed: 06/08/10 14:26						
QC Source Sample: Other (A10F019-03)												
EPA 200.8 (Diss)												
Arsenic	54.2	0.500	2.00	ug/L	1	55.6	ND	98	70-130%	---	---	
Cadmium	57.7	0.100	1.00	"	"	"	ND	104	"	---	---	
Chromium	53.4	0.200	2.00	"	"	"	0.589	95	"	---	---	
Copper	57.8	0.300	4.00	"	"	"	1.96	100	"	---	---	
Lead	54.4	0.200	1.00	"	"	"	ND	98	"	---	---	
Zinc	66.2	1.30	4.00	"	"	"	14.8	93	"	---	---	

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Anchor Environmental, LLC Portland
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 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

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QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006127 - EPA 3015A - Dissolved						Water						
Matrix Spike (1006127-MS2)						Prepared: 06/08/10 09:33 Analyzed: 06/08/10 14:59						
QC Source Sample: MOC-060310-4 (A10F066-04)												
EPA 200.8 (Diss)												
Arsenic	54.6	0.500	2.00	ug/L	1	55.6	ND	98	70-130%	---	---	
Cadmium	56.4	0.100	1.00	"	"	"	ND	102	"	---	---	
Chromium	53.8	0.200	2.00	"	"	"	0.711	96	"	---	---	
Copper	65.5	0.300	4.00	"	"	"	8.42	103	"	---	---	
Lead	54.6	0.200	1.00	"	"	"	0.222	98	"	---	---	
Zinc	92.1	1.30	4.00	"	"	"	40.4	93	"	---	---	

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Project: **McCall Portland**
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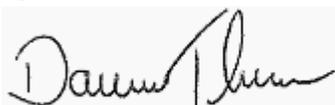
Reported:
 06/28/10 10:17

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1006112 - Total Suspended Solids						Water						
Blank (1006112-BLK1)						Prepared: 06/07/10 10:23 Analyzed: 06/07/10 16:16						
SM 2540 D												
Total Suspended Solids	ND	1.00	1.00	mg/L	1	---	---	---	---	---	---	---
Duplicate (1006112-DUP1)						Prepared: 06/07/10 10:23 Analyzed: 06/07/10 17:25						
QC Source Sample: Other (A10F020-01)												
SM 2540 D												
Total Suspended Solids	41.0	5.00	5.00	mg/L	1	---	48.0	---	---	16	20%	
Duplicate (1006112-DUP2)						Prepared: 06/07/10 10:23 Analyzed: 06/07/10 17:25						
QC Source Sample: Other (A10F067-01)												
SM 2540 D												
Total Suspended Solids	583	21.7	21.7	mg/L	1	---	586	---	---	0.5	20%	
Reference (1006112-SRM1)						Prepared: 06/07/10 10:23 Analyzed: 06/07/10 17:25						
SM 2540 D												
Total Suspended Solids	89.4			mg/L	1	87.9		102	90-110%	---	---	

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Project: **McCall Portland**
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Project Manager: John Renda

Reported:
06/28/10 10:17

SAMPLE PREPARATION INFORMATION

Diesel Range (C10-C22) and Oil Range (C22-C40) Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006126							
A10F066-01	Water	NWTPH-Dx	06/03/10 00:00	06/08/10 09:12	1065mL/2mL	1000mL/2mL	0.94
A10F066-02	Water	NWTPH-Dx	06/03/10 00:00	06/08/10 09:12	1060mL/2mL	1000mL/2mL	0.94
A10F066-03	Water	NWTPH-Dx	06/03/10 00:00	06/08/10 09:12	1055mL/2mL	1000mL/2mL	0.95
A10F066-04	Water	NWTPH-Dx	06/03/10 00:00	06/08/10 09:12	1050mL/2mL	1000mL/2mL	0.95

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006104							
A10F066-01	Water	NWTPH-Gx	06/03/10 00:00	06/07/10 09:00	5mL/5mL	5mL/5mL	1.00
A10F066-02	Water	NWTPH-Gx	06/03/10 00:00	06/07/10 09:00	5mL/5mL	5mL/5mL	1.00
A10F066-03	Water	NWTPH-Gx	06/03/10 00:00	06/07/10 09:00	5mL/5mL	5mL/5mL	1.00
A10F066-04	Water	NWTPH-Gx	06/03/10 00:00	06/07/10 09:00	5mL/5mL	5mL/5mL	1.00

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006114							
A10F066-01	Water	EPA 8082A	06/03/10 00:00	06/07/10 12:49	1060mL/2mL	1000mL/1mL	1.89
A10F066-02	Water	EPA 8082A	06/03/10 00:00	06/07/10 12:49	1060mL/2mL	1000mL/1mL	1.89
A10F066-03	Water	EPA 8082A	06/03/10 00:00	06/07/10 12:49	1060mL/2mL	1000mL/1mL	1.89
A10F066-04	Water	EPA 8082A	06/03/10 00:00	06/07/10 12:49	1060mL/2mL	1000mL/1mL	1.89

Organochlorine Pesticides by EPA 8081B

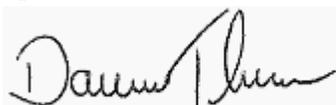
Prep: EPA 3510C (Neutral pH)/3640A (GPC)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006169							
A10F066-01RE1	Water	EPA 8081B	06/03/10 00:00	06/09/10 09:34	1060mL/5mL	1000mL/5mL	0.94
A10F066-02RE1	Water	EPA 8081B	06/03/10 00:00	06/09/10 09:34	1060mL/5mL	1000mL/5mL	0.94
A10F066-03RE1	Water	EPA 8081B	06/03/10 00:00	06/09/10 09:34	1055mL/5mL	1000mL/5mL	0.95
A10F066-04RE1	Water	EPA 8081B	06/03/10 00:00	06/09/10 09:34	1055mL/5mL	1000mL/5mL	0.95

Semivolatile Organic Compounds by EPA 8270D

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Project: **McCall Portland**
Project Number: 030162-01.01
Project Manager: John Renda

Reported:
06/28/10 10:17

SAMPLE PREPARATION INFORMATION

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3510C (Acid Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006107							
A10F066-01	Water	EPA 8270D	06/03/10 00:00	06/07/10 09:06	1050mL/1mL	1000mL/1mL	0.95
A10F066-01RE1	Water	EPA 8270D	06/03/10 00:00	06/07/10 09:06	1050mL/1mL	1000mL/1mL	0.95
A10F066-02	Water	EPA 8270D	06/03/10 00:00	06/07/10 09:06	1050mL/1mL	1000mL/1mL	0.95
A10F066-02RE1	Water	EPA 8270D	06/03/10 00:00	06/07/10 09:06	1050mL/1mL	1000mL/1mL	0.95
A10F066-03	Water	EPA 8270D	06/03/10 00:00	06/07/10 09:06	1060mL/1mL	1000mL/1mL	0.94
A10F066-03RE1	Water	EPA 8270D	06/03/10 00:00	06/07/10 09:06	1060mL/1mL	1000mL/1mL	0.94
A10F066-04	Water	EPA 8270D	06/03/10 00:00	06/07/10 09:06	1060mL/1mL	1000mL/1mL	0.94
A10F066-04RE1	Water	EPA 8270D	06/03/10 00:00	06/07/10 09:06	1060mL/1mL	1000mL/1mL	0.94

Total Metals by EPA 200.8 (ICPMS)

Prep: EPA 3015A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006110							
A10F066-01	Water	EPA 200.8	06/03/10 00:00	06/07/10 10:01	45mL/50mL	45mL/50mL	1.00
A10F066-02	Water	EPA 200.8	06/03/10 00:00	06/07/10 10:01	45mL/50mL	45mL/50mL	1.00
A10F066-03	Water	EPA 200.8	06/03/10 00:00	06/07/10 10:01	45mL/50mL	45mL/50mL	1.00
A10F066-04	Water	EPA 200.8	06/03/10 00:00	06/07/10 10:01	45mL/50mL	45mL/50mL	1.00

Dissolved Metals by EPA 200.8 (ICPMS)

Prep: EPA 3015A - Dissolved

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006127							
A10F066-01	Water	EPA 200.8 (Diss)	06/03/10 00:00	06/08/10 09:33	45mL/50mL	45mL/50mL	1.00
A10F066-02	Water	EPA 200.8 (Diss)	06/03/10 00:00	06/08/10 09:33	45mL/50mL	45mL/50mL	1.00
A10F066-03	Water	EPA 200.8 (Diss)	06/03/10 00:00	06/08/10 09:33	45mL/50mL	45mL/50mL	1.00
A10F066-04	Water	EPA 200.8 (Diss)	06/03/10 00:00	06/08/10 09:33	45mL/50mL	45mL/50mL	1.00

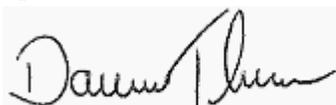
Conventional Chemistry Parameters

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 1006112							
A10F066-01	Water	SM 2540 D	06/03/10 00:00	06/07/10 10:23	500N/A/1N/A	500N/A/1mL	NA
A10F066-02	Water	SM 2540 D	06/03/10 00:00	06/07/10 10:23	500N/A/1N/A	500N/A/1mL	NA
A10F066-03	Water	SM 2540 D	06/03/10 00:00	06/07/10 10:23	500N/A/1N/A	500N/A/1mL	NA

Apex Laboratories

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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland 6650 SW Redwood Lane Ste. 333 Portland, OR 97224	Project: McCall Portland Project Number: 030162-01.01 Project Manager: John Renda	Reported: 06/28/10 10:17
--	--	------------------------------------

SAMPLE PREPARATION INFORMATION

Conventional Chemistry Parameters

Prep: Total Suspended Solids

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
A10F066-04	Water	SM 2540 D	06/03/10 00:00	06/07/10 10:23	500N/A/1N/A	500N/A/1mL	NA

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland

6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**

Project Number: 030162-01.01
Project Manager: John Renda

Reported:
06/28/10 10:17

Notes and Definitions

Qualifiers:

- A-01 Detected hydrocarbon pattern appears to be due to heavily weathered diesel and/or light weight oil.
- C-05 Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Sample Final Volume includes the GPC dilution factor.
- C-07 Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- F-05 The sample chromatographic pattern does not resemble the fuel standard used for quantitation.
- F-07 Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
- J Estimated Result . Result detected below the lowest point of the calibration curve, but above the specified MDL.
- Q-19 Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-23 Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Data is likely biased high.
- Q-29 Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
- R-01 The Reporting Limit for this analyte has been raised to account for matrix interference.
- R-04 Reporting levels elevated due to dilution necessary for analysis.

Notes and Conventions:

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry' designation are not dry weight corrected.
- RPD Relative Percent Difference
- MDL If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
- WMSC Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
- Batch QC Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
- Blank Policy Apex assesses blank data for potential high bias down to a level equal to 1/2 the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.

For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland

6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**

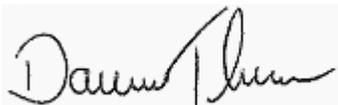
Project Number: 030162-01.01
Project Manager: John Renda

Reported:

06/28/10 10:17

Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

Apex Laboratories



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Darwin Thomas, Business Development Director

Anchor Environmental, LLC Portland
6650 SW Redwood Lane Ste. 333
Portland, OR 97224

Project: **McCall Portland**

Project Number: 030162-01.01
Project Manager: John Renda

Reported:
06/28/10 10:17

CHAIN OF CUSTODY

Lab # **AIDFOGL** coc **1 of 1**

Company: **ANCHOR QEA, LLC** Project Mgr: **JOHN RENDA** Project Name: **McCall STOPPING AREA** Project #: **030162-01.01**
 Address: **6650 SW REDWOOD LN #333** Phone: **503-670-1081** Fax: **503-670-1128** Email: **jrenda@anchorqea.com**
 Shipped by: **Timothy J. Stone** **LAQ**

Site Location: OR WA Other: _____

LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-CID	NWTPH-Ds	NWTPH-Gs	RTN	8260 HHM VOCs	8260 H14c VOCs	8270 SIM PAHs	8082 PCBs	3000 Chl. Pest	PCRA Metals (8)	Priority Metals (13)	TCF Metals (8)	1200-COLS	1200-Z	Phthalates	4-Methylphenol	IBenzofuran
MAL-060310-1	6/15/10	12	W	2	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
-2	↓	↓	↓	↓	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
-3	↓	↓	↓	↓	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
-4	↓	↓	↓	↓	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X

ANALYSIS REQUEST: **OT+D** **OT+D** **OT+D** **OT+D**

SPECIAL INSTRUCTIONS:
 ① Total and Dissolved Metals by 6020. Dissolved Sample is marked on label and has been field followed.
 ② Method 8270D

Normal Turn Around Time (TAT) = 5-10 Business Days

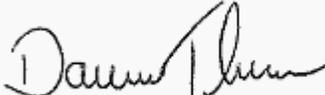
TAT Requested (circle): 24 HR 48 HR 72 HR 4 DAY 5 DAY Other: _____

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: **Timothy J. Stone** Date: **6/14/10** Signature: _____ RECEIVED BY: _____
 Printed Name: **Timothy J. Stone** Date: **6/14/10** Signature: _____
 Company: **ANCHOR QEA, LLC**

RELINQUISHED BY: **Lindsay Menor** Date: **6/14/10** Signature: _____ RECEIVED BY: _____
 Printed Name: **Lindsay Menor** Date: **6/14/10** Signature: _____
 Company: **Apex Labs**

Apex Laboratories



Darwin Thomas, Business Development Director

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Anchor Environmental, LLC Portland
 6650 SW Redwood Lane Ste. 333
 Portland, OR 97224

Project: **McCall Portland**
 Project Number: 030162-01.01
 Project Manager: John Renda

Reported:
 06/28/10 10:17

APEX LABS COOLER RECEIPT FORM

Client: Anchor Element WO#: A10 F0666
 Project/Project #: McCall Stormwater2 (SW) / 030162-01.01

Delivery info:

Date/Time Received: 6/4/10 @ 1320 By: Lindsay M
 Delivered by: Apex Courier Client FedEx UPS DHL Other
 Courier/Client Name or Air Bill # _____

Cooler Inspection Inspected by: Lindsay M ^{6/4} @ 1325

Chain of Custody:

Included? Yes No Signed/Dated by Client? Yes No
 Signed/Dated by Apex Personnel? Yes No

Coolers: No. of Coolers: 4

	Cooler #1	Cooler #2	Cooler #3	Cooler #4
Temperature (deg. C)	<u>5.5</u>	<u>1.9</u>	<u>4.9</u>	<u>4.5</u>
Received on Ice? (Y/N)	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>
Temp. Blanks? (Y/N)	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>
Ice Type: (Gel/Real/Other)	<u>Real</u>	<u>Real</u>	<u>Real</u>	<u>Real</u>
Condition:	<u>Good</u>	<u>Good</u>	<u>Good</u>	<u>Good</u>

Samples Inspection: Inspected by: COB @ 1502

All Samples Intact? Yes No Comments: _____

Bottle Labels/COCs agree? Yes No Comments: Labels list time sampled on bottle labels and not coc.

Containers Appropriate for Analysis? Yes No Comments: _____

Do VOA Vials have Visible Headspace? Yes No NA

Comments: _____

Water Samples: pH Checked and Appropriate (except VOAs): Yes No NA

Comments: _____

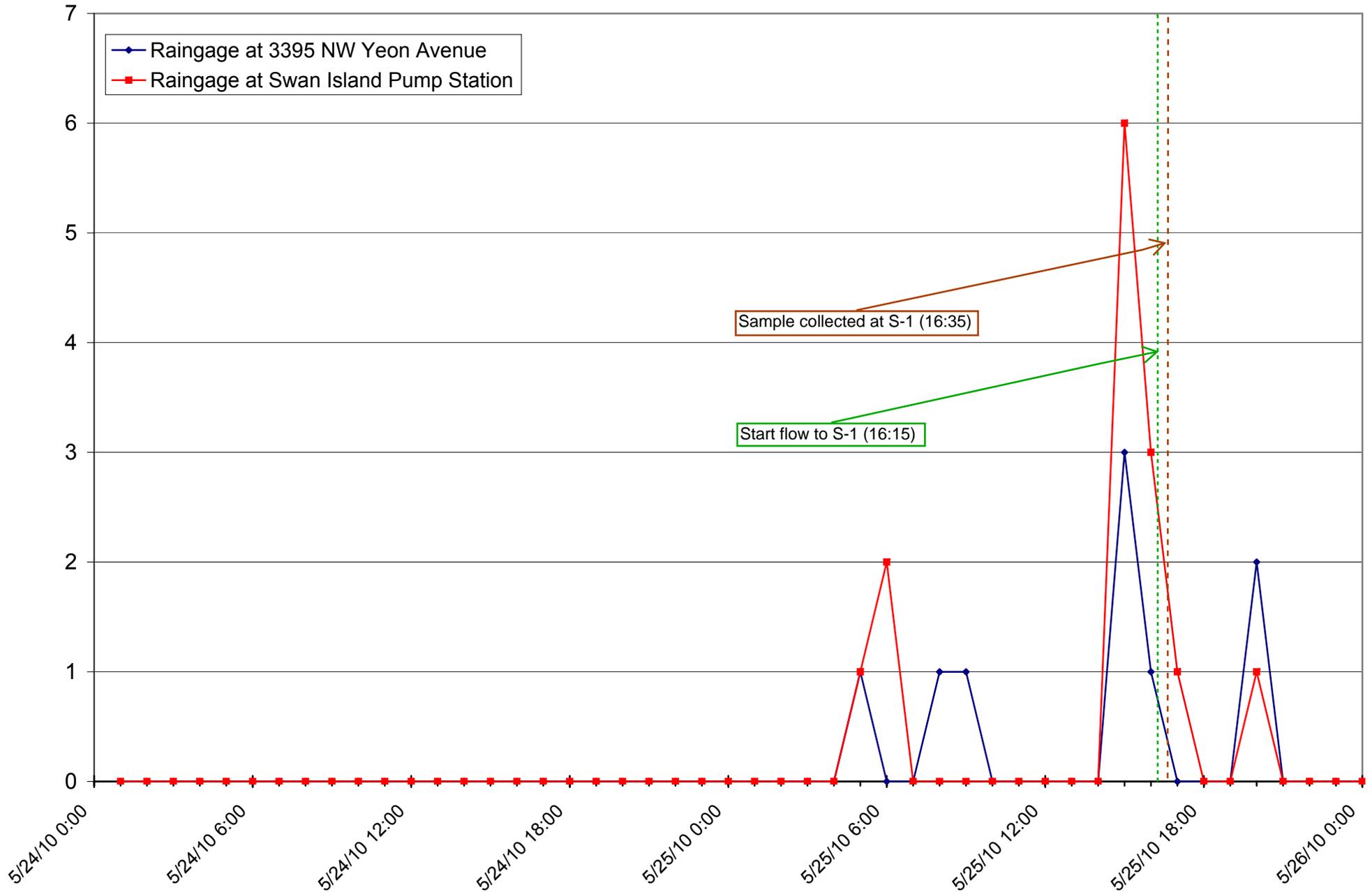
Additional Information:

Labels read MDC-060310-1 (1920), -2 (1940), -3 (2000)
 -4 (2125)

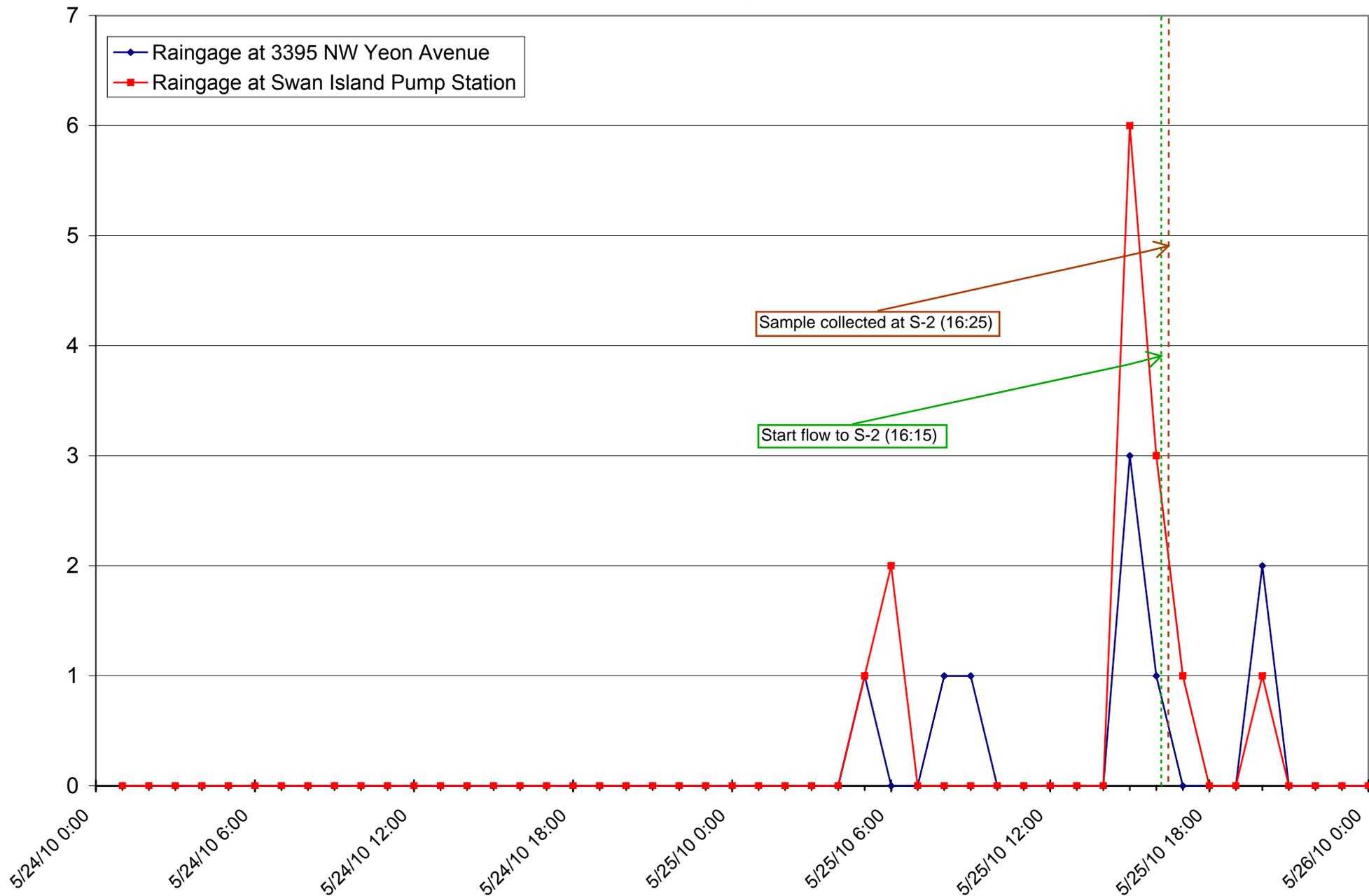


ATTACHMENT C
STORMWATER SAMPLING
HYDROGRAPHS

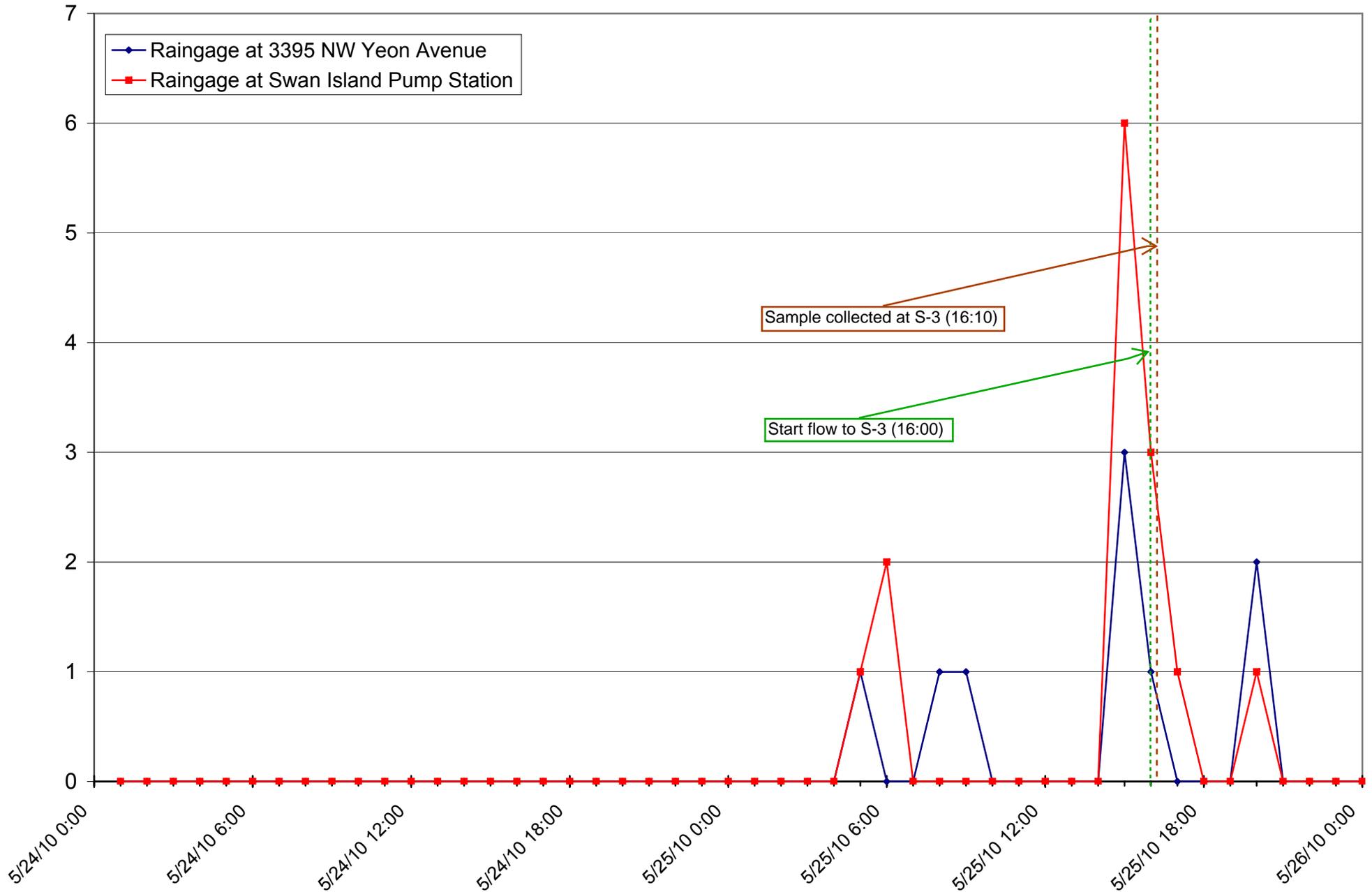
S-1
Stormwater Sample Collection Hydrograph
May 24-25, 2010
McCall Oil Front Avenue
Portland, Oregon



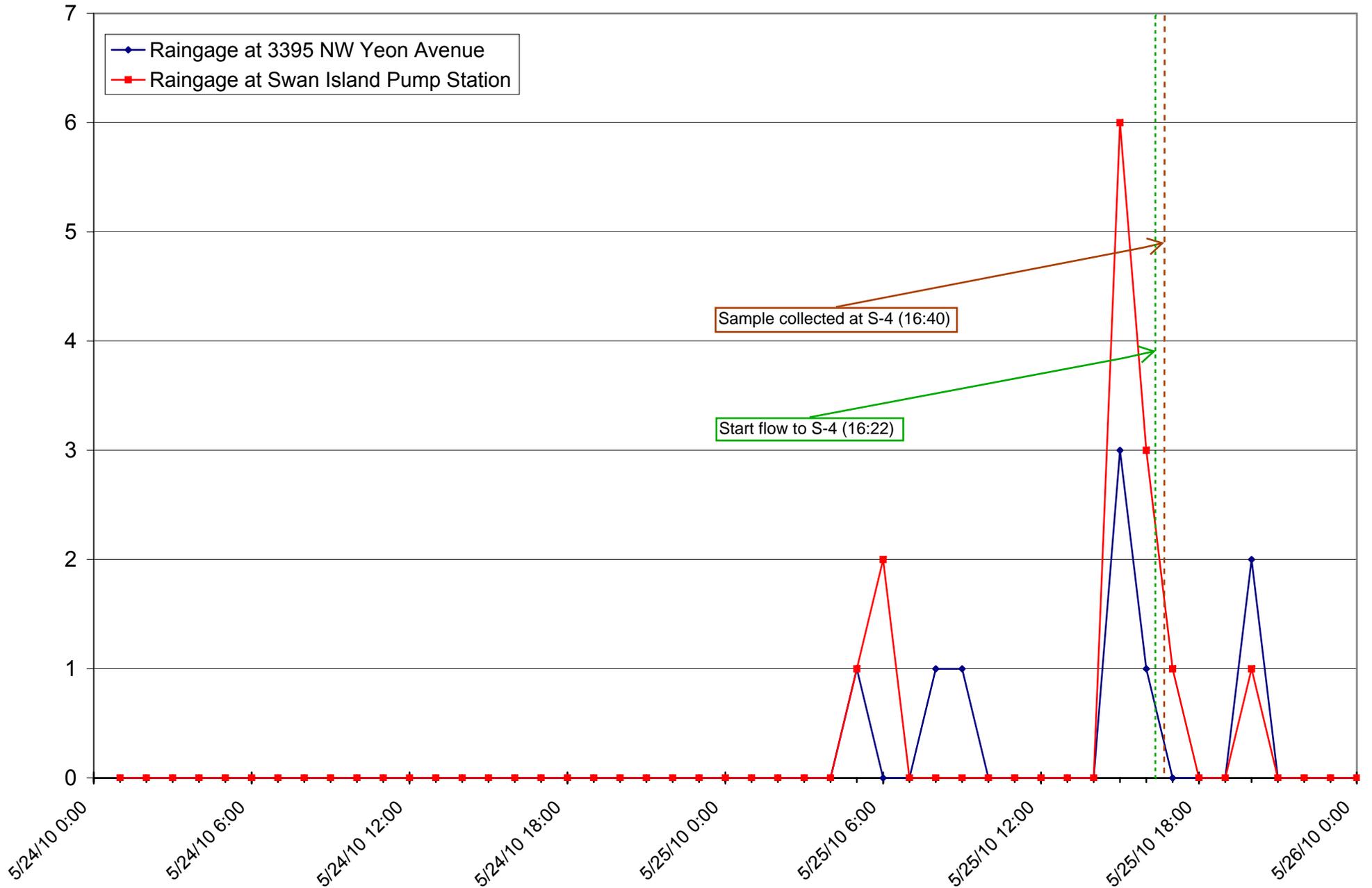
S-2
Stormwater Sample Collection Hydrograph
May 24-25, 2010
McCall Oil Front Avenue
Portland, Oregon



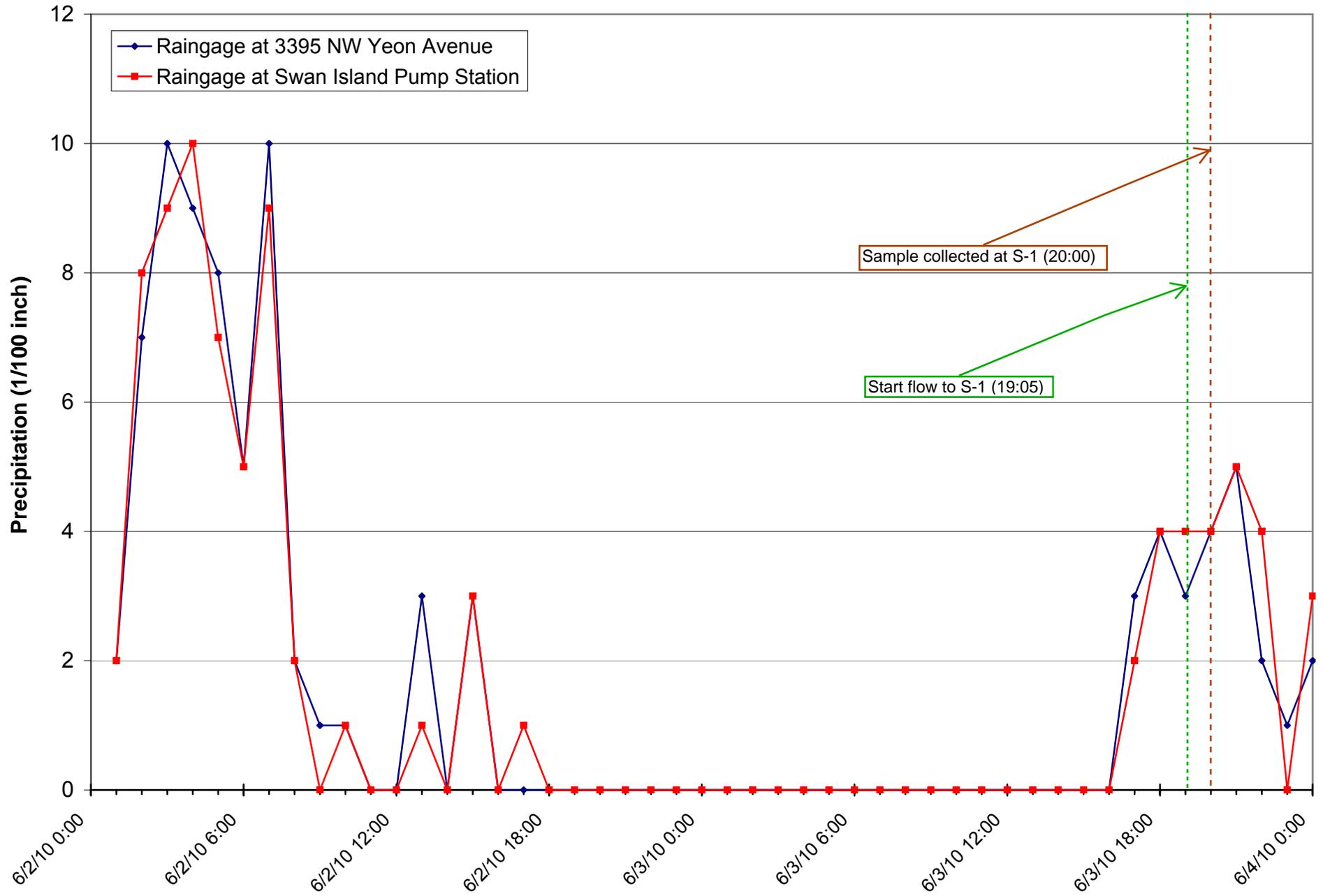
S-3
Stormwater Sample Collection Hydrograph
May 24-25, 2010
McCall Oil Front Avenue
Portland, Oregon



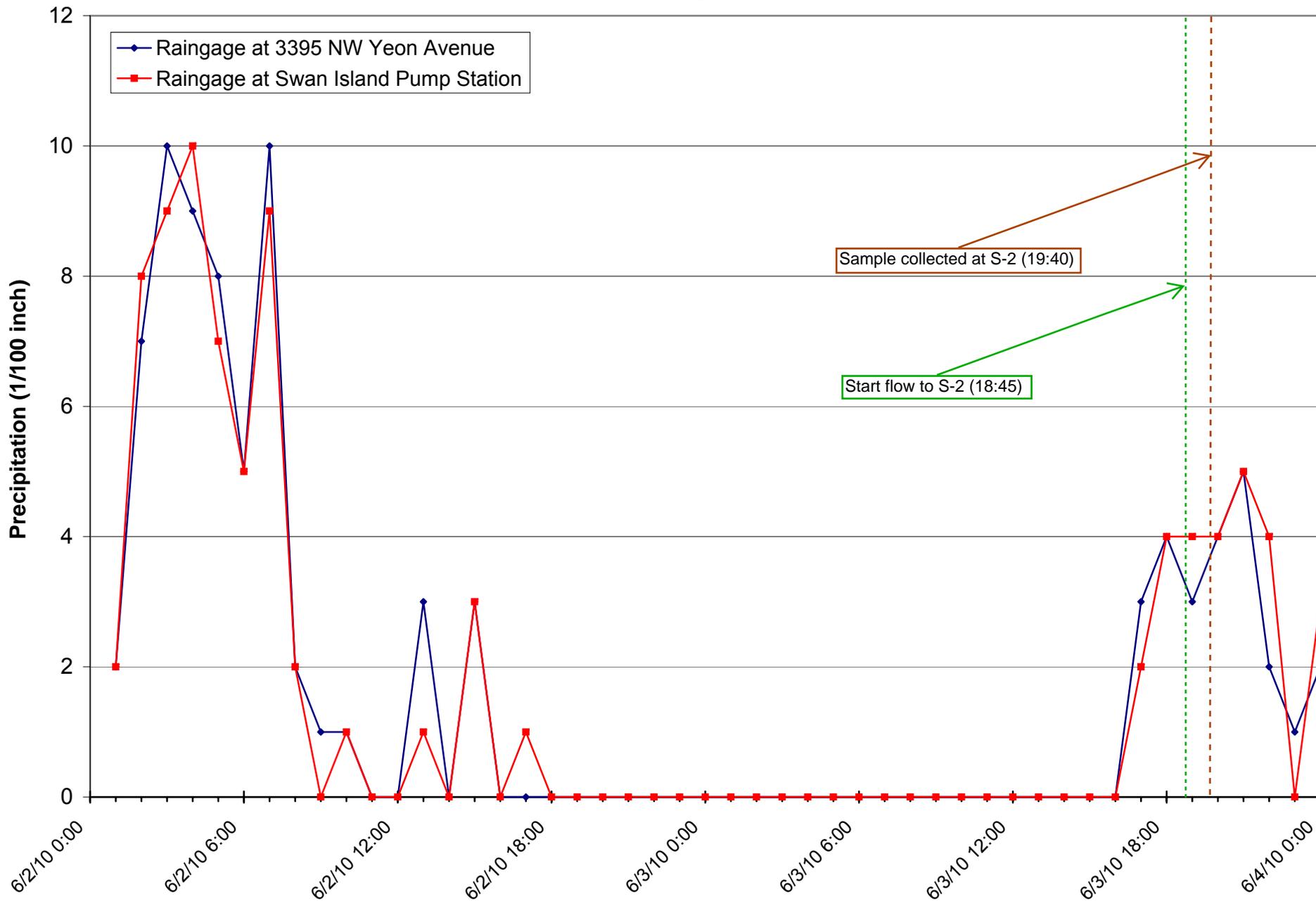
S-4
Stormwater Sample Collection Hydrograph
May 24-25, 2010
McCall Oil Front Avenue
Portland, Oregon



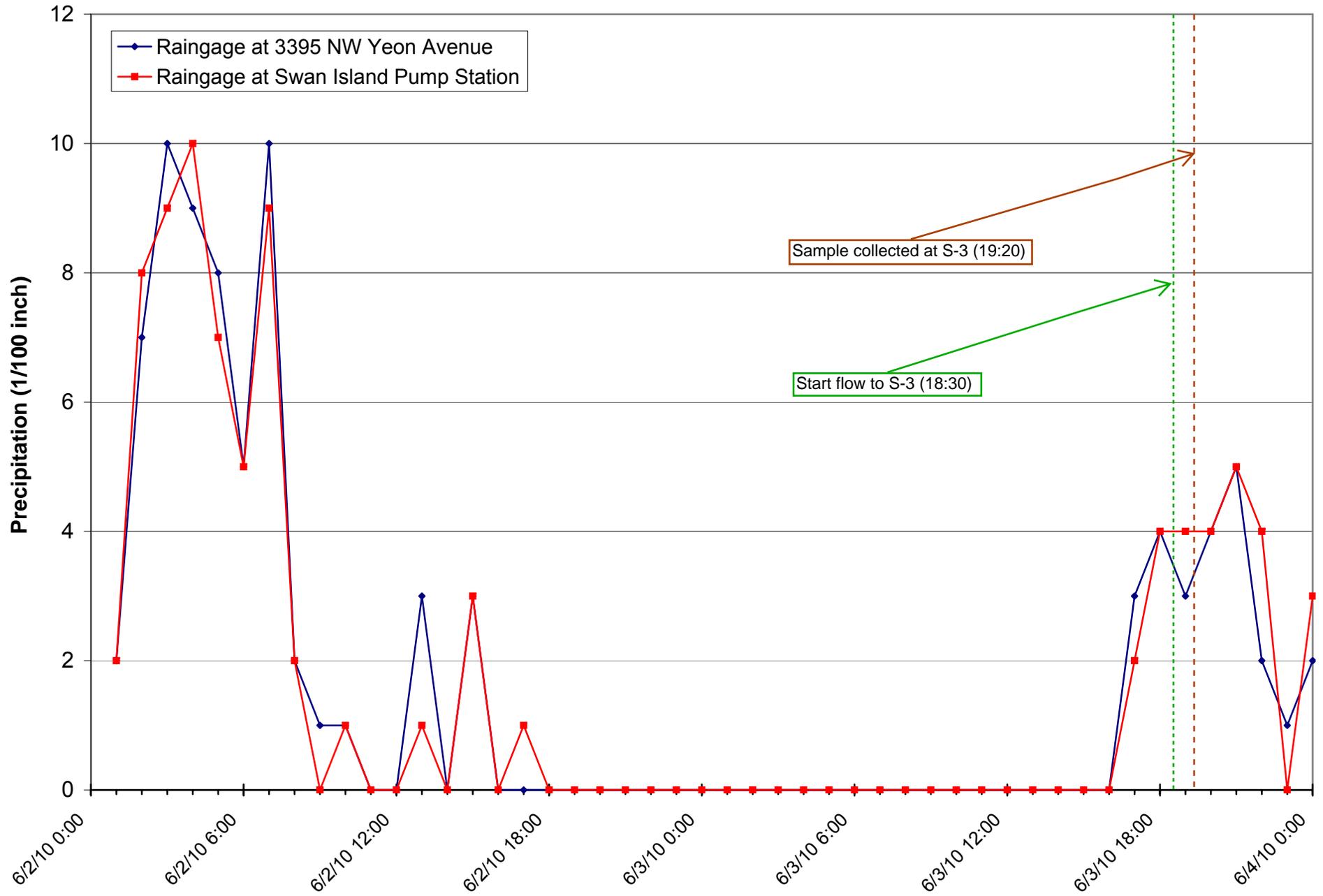
S-1
Stormwater Sample Collection Hydrograph
June 2-3, 2010
McCall Oil Front Avenue
Portland, Oregon



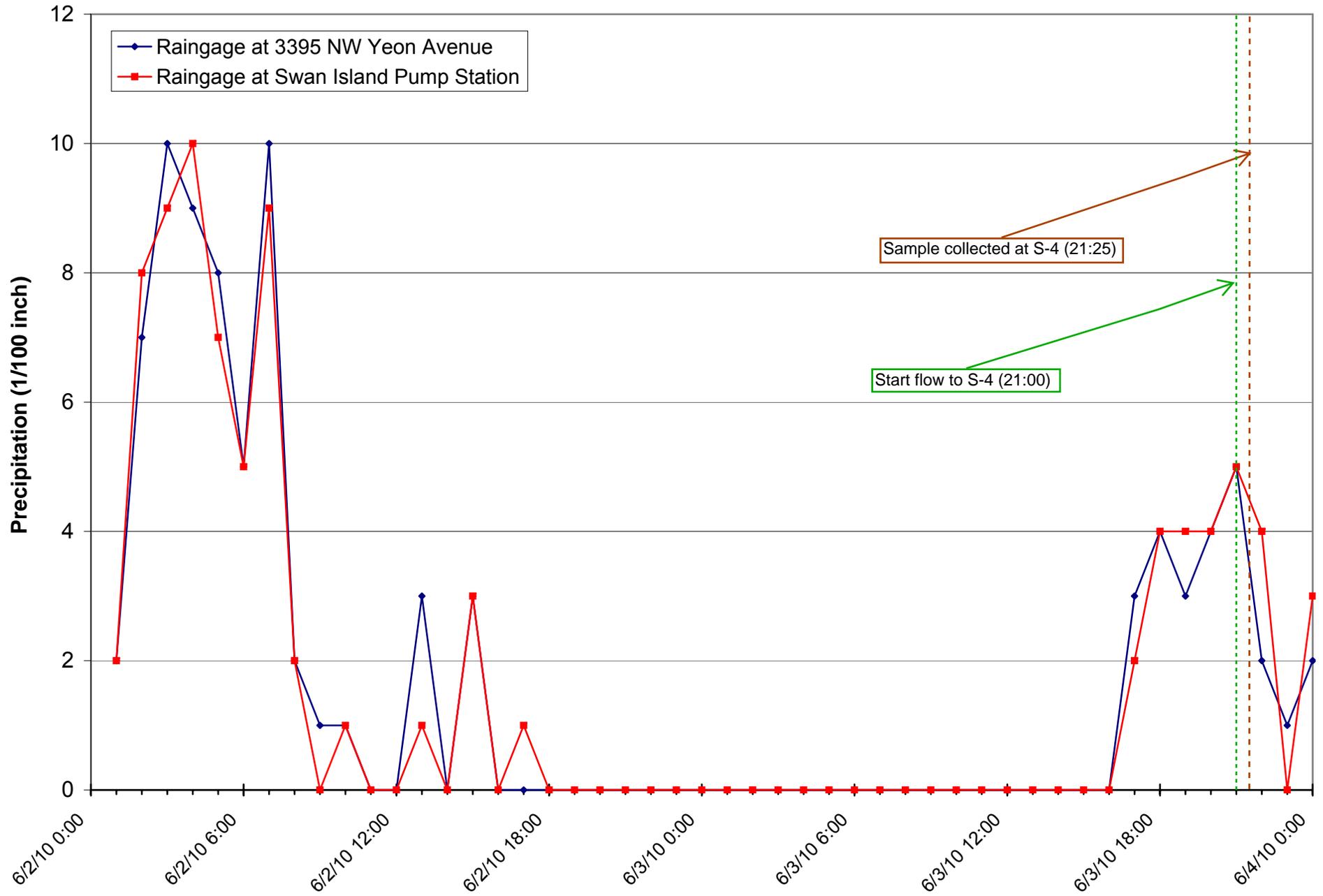
S-2
Stormwater Sample Collection Hydrograph
June 2-3, 2010
McCall Oil Front Avenue
Portland, Oregon



S-3
Stormwater Sample Collection Hydrograph
June 2-3, 2010
McCall Oil Front Avenue
Portland, Oregon



S-4
Stormwater Sample Collection Hydrograph
June 2-3, 2010
McCall Oil Front Avenue
Portland, Oregon



ATTACHMENT D
DATA VALIDATION REVIEW

DATA VALIDATION REVIEW REPORT – EPA LEVEL 2

Project: McCall Portland
Project Number: 030162-01
Date: June 28, 2010

This report summarizes the review of analytical results for 4 catch basin sediments and 8 storm water samples collected on May 21, May 25, and June 3, 2010. Samples were collected by Anchor QEA, LLC and submitted to Apex Laboratories in Tigard, Oregon. Samples were analyzed for the following parameters:

- Semivolatile organic compounds (SVOCs) by United States Environmental Protection Agency (USEPA) method 8270D
- Polychlorinated biphenyls (PCBs) Aroclors by USEPA method 8082A
- Organochlorine pesticides by USEPA method 8081B
- Diesel range organics (DRO) and oil range organics (ORO) by method NWTPHD_x
- Gasoline range organics (GRO) by method NWTPHG_x
- Total metals by USEPA methods 200.8 and 6020
- Total suspended solids (TSS) by Standard Method (SM) 2540D
- Total organic carbon (TOC) by SM5310B modified
- Total solids (TS) by ASTM D2216

Apex sample data group (SDG) numbers A10E224, A10E258, and A10F066 were reviewed in this report. The samples reviewed in this report are presented in Table 1.

Table 1
Samples Reviewed

Sample ID	Sample Location	Lab ID	Matrix	Analyses Requested
MOC-052110-1	S-1	A10E224-01	Sediment	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TOC, TS
MOC-052110-2	S-2	A10E224-02	Sediment	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TOC, TS

Sample ID	Sample Location	Lab ID	Matrix	Analyses Requested
MOC-052110-3	S-3	A10E224-03	Sediment	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TOC, TS
MOC-052110-4	S-4	A10E224-04	Sediment	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TOC, TS
MOC-052510-1	S-3	A10E258-01	Water	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TSS
MOC-052510-2	S-2	A10E258-02	Water	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TSS
MOC-052510-3	S-1	A10E258-03	Water	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TSS
MOC-052510-4	S-4	A10E258-04	Water	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TSS
MOC-060310-1	S-3	A10F066-01	Water	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TSS
MOC-060310-2	S-2	A10F066-02	Water	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TSS
MOC-060310-3	S-1	A10F066-03	Water	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TSS
MOC-060310-4	S-4	A10F066-04	Water	SVOCs, PCBs, pesticides, DRO, ORO, GRO, metals, TSS

Data Validation and Qualifications

The following comments refer to the laboratory's performance in meeting the quality assurance/quality control (QA/QC) guidelines outlined in the analytical procedures.

Laboratory results were reviewed following *USEPA Contract Laboratory Program National Functional Guidelines for Inorganics Data Review (USEPA, 2004)* and *USEPA National Functional Guidelines for Superfund Organic Methods Data Review (USEPA, 2008)* as guidelines, and applying laboratory and method QC criteria as stated in SW 846, Third Edition, *Test Methods for Evaluating Solid Waste*, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998. Unless noted in this report, laboratory results for the samples listed above were within QC criteria.

Field Documentation

Field documentation was checked for completeness and accuracy. The chain-of-custody forms were signed by Apex at the time of sample receipt; the samples were received in good condition. The sediment samples were received above the recommended temperature range. However, they were received within a short time of collection so data are not expected to be impacted. The water samples were received within the recommended temperature range.

Holding Times and Sample Preservation and Analytical Methods

Samples were appropriately preserved and analyzed within holding times.

Laboratory Method Blanks

Laboratory method blanks were analyzed at the required frequencies. All method blanks were free of target analytes with the following exceptions:

- SDG A10E224 SVOCs: Fluoranthene and di-n-butyl phthalate were detected in the method blank at levels between the method detection limits (MDLs) and the method reporting limits (MRLs). Associated sample results were either non-detect or were significantly greater than (>10x for phthalates; >5x for all other analytes) the levels detected in the method blanks so no data were qualified.
- SDG A10F066 Metals: Chromium was detected in the dissolved metals method blank at a level between the MDL and the MRL. Associated sample results were elevated to the MRL and qualified as non-detect because they were not significantly greater than (>5x) the level detected in the method blank. See Table 2 for qualified data.

Field Quality Control

Field Blanks

No field blanks were collected in association with these sample sets.

Field Duplicates

No field duplicates were collected in association with these sample sets.

Surrogate Recoveries

Surrogate recoveries were within laboratory control limits for all surrogates with the exceptions of the low recovery of 2-fluorobiphenyl and the high recovery of p-terphenyl-d14 in the SVOC analysis of sample MOC-052110-3. Associated base-neutral compound results have been qualified as “J” or “UJ” to indicate they are estimated. See Table 2 for qualified data. P-terphenyl-d14 also recovered above limits in the associated LCS (1005446-BSI). Since only one surrogate was outside of control limits in the LCS, no data were qualified. 2-Fluorophenol recovered below laboratory limits in samples MOC-052110-3 and MOC-052110-4. Since only one acid surrogate was outside of control limits for these analyses, associated results were not qualified.

Laboratory Control Sample (LCS) and LCS Duplicate (LCSD)

LCSs and LCSDs were analyzed at the required frequencies and resulted in percent recoveries (%R) within laboratory control limits with the following exceptions:

- SDG A10E224 SVOCs: Six analytes in the LCS recovered above the laboratory control limits. Associated detected results have been qualified “J” to indicate a potentially high bias. See Table 2 for qualified data.
- SDG A10F066 SVOCs: Di-n-butyl phthalate in the LCSD recovered above the laboratory control limits. This analyte was not detected in the associated sample results so no data were qualified.
- SDG A10E258 Pesticides: Seven analytes in the LCS and six analytes in the LCSD recovered above the laboratory control limits. Associated sample results were non-detect so no data were qualified. Hexachlorobutadiene in the LCS recovered below the laboratory control limits. Associated sample results have been qualified “UJ” to indicate a potentially low bias. See Table 2 for qualified data.

Standard Reference Material (SRM)

SRMs were analyzed in association with TSS analyses and resulted in recoveries within specified limits.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD)

MS and MSD samples were analyzed at the required frequencies or LCS/LCSDs were analyzed in lieu of MS/MSDs. All MS/MSD analyses yielded percent recoveries (%R)s and/or relative percent difference (RPD) values within laboratory control limits with the following exceptions:

- SDG A10E224 SVOCs: Nine analytes in the MS recovered above the laboratory control limits. Seven of these analytes were not detected in the parent sample so associated results were not qualified. The benzo(b)fluoranthene and bis(2-ethylhexyl)phthalate results were qualified “J” to indicate a potentially high bias.
- SDG A10E224 Pesticides: Methoxychlor in the MS recovered above the laboratory control limits. This analyte was not detected in the parent sample so no data were qualified.

See Table 2 for qualified data.

Laboratory Duplicates

Laboratory duplicates were analyzed at the required frequencies. All RPD values were within laboratory control limits with the following exceptions:

- NWTPHGX: The duplicate sediment GRO analysis in SDG A10E224 resulted in a RPD value above the laboratory control limits. However, this analysis was performed on a non-project sample, so no data were qualified.
- SVOCs: The duplicate SVOC analysis in SDG A10E224 resulted in RPD values for bis(2-ethylhexyl) phthalate and butyl benzyl phthalate above the laboratory control limits. Associated parent sample results have been qualified “J” or “UJ” to indicate they are estimated.

Sample Analyses

The TOC result for sample MOC-052110-2 was qualified by the laboratory as estimated because the concentration was above the measurement system capability. The result has been qualified “J” to indicate it is estimated. See Table 2 for qualified data.

Method Reporting Limits

Reporting limits were deemed acceptable as reported. All values were reported using the laboratory reporting limits. Values were reported as undiluted, or when reported as diluted, the reporting limit accurately reflects the dilution factor. Some organics reporting limits were elevated due to matrix interference.

Overall Assessment

As was determined by this evaluation, the laboratory followed the specified analytical methods and all requested sample analyses were completed. Accuracy was acceptable, as demonstrated by the surrogate, SRM, LCS/LCSD, and MS/MSD %R values, with the exceptions noted earlier. Precision was also acceptable as demonstrated by the laboratory duplicates, MS/MSD and LCS/LCSD RPD values, with the exceptions noted earlier. Most data were deemed acceptable as reported; all other data are acceptable as qualified. Table 2 summarizes the qualifiers applied to samples reviewed in this report.

Data Qualifier Definitions

- U Indicates the compound or analyte was analyzed for but not detected at or above the specified limit.
- J Indicates an estimated value.
- R Indicates data is rejected and unusable.
- UJ Indicates the compound or analyte was analyzed for but not detected and the specified limit reported is estimated.

Table 2
Data Qualification Summary

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
MOC-052110-1	SVOCs	Benzo(a)pyrene	2600 µg/kg	2600J µg/kg	High LCS %R
		Pyrene	4520 µg/kg	4520J µg/kg	
		Di-n-butyl phthalate	542 µg/kg	542J µg/kg	
		Di-n-octyl phthalate	2860 µg/kg	2860J µg/kg	
		Bis(2-ethylhexyl) phthalate	5100 µg/kg	5100J µg/kg	High LCS %R, high duplicate RPD
		Butyl benzyl phthalate	2210 µg/kg	2210J µg/kg	
MOC-052110-2	Conventionals	TOC	16300 mg/kg	16300J mg/kg	Concentration above system capability
	SVOCs	Pyrene	1980 µg/kg	1980J µg/kg	High LCS %R
		Bis(2-ethylhexyl) phthalate	11900 µg/kg	11900J µg/kg	
		Butyl benzyl phthalate	9790 µg/kg	9790J µg/kg	
		Di-n-butyl phthalate	808 µg/kg	808J µg/kg	
MOC-052110-3	SVOCs	All base-neutral compounds	Various	J or UJ	Surrogate %Rs outside of control limits
		Benzo(a)pyrene	514 µg/kg	514J µg/kg	High LCS %R
		Pyrene	634 µg/kg	634J µg/kg	
		Bis(2-ethylhexyl) phthalate	18700 µg/kg	18700J µg/kg	
		Butyl benzyl phthalate	1770 µg/kg	1770J µg/kg	
		Di-n-butyl phthalate	484 µg/kg	484J µg/kg	
		Di-n-octyl phthalate	3090 µg/kg	3090J µg/kg	
		MOC-052110-4	SVOCs	Benzo(b)fluoranthene		260 µg/kg	260J µg/kg	High MS %R
Pyrene	189 µg/kg			189J µg/kg	High LCS %R
Bis(2-ethylhexyl) phthalate	2990 µg/kg			2990J µg/kg	High LCS and MS %R
MOC-052510-1	Pesticides	Hexachlorobutadiene	0.0284U µg/L	0.0284UJ µg/L	Low LCS %R
MOC-052510-2	Pesticides	Hexachlorobutadiene	0.0284U µg/L	0.0284UJ µg/L	Low LCS %R
MOC-052510-3	Pesticides	Hexachlorobutadiene	0.0284U µg/L	0.0284UJ µg/L	Low LCS %R
MOC-052510-4	Pesticides	Hexachlorobutadiene	0.0283U µg/L	0.0283UJ µg/L	Low LCS %R
MOC-060310-1	Metals	Dissolved chromium	0.844J µg/L	2.00U µg/L	Method blank contamination
MOC-060310-2	Metals	Dissolved chromium	0.689J µg/L	2.00U µg/L	Method blank contamination
MOC-060310-3	Metals	Dissolved chromium	0.633J µg/L	2.00U µg/L	Method blank contamination

Sample ID	Parameter	Analyte	Reported Result	Qualified Result	Reason
MOC-060310-4	Metals	Dissolved chromium	0.711J µg/L	2.00U µg/L	Method blank contamination

REFERENCES

- USEPA. 1983. Methods for Chemical Analysis of Water and Wastes. U.S. Environmental Protection Agency, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio. EPA-600/4-79-020.
- USEPA. 1986. Test methods for Evaluating Solid Waste: Physical/Chemical Methods. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. EPA-530/SW-846.
- USEPA. 2004. USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation (OSRTI). EPA 540-R-04-004. October.
- USEPA. 2008. USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review. U.S. Environmental Protection Agency, Office of Superfund Remediation and Technology Innovation. USEPA 540-R-08-01. June.

ATTACHMENT E
DEQ SCREENING TEMPLATE

	Screening Value ¹	S-1	S-1	S-1	S-2	S-2	S-2	S-3	S-3	S-3	S-3	S-3	S3-01C	S-4									
		12/15/00	11/12/07	05/21/10	12/15/00	11/12/07	05/21/10	12/15/00	11/04/04	05/02/07	05/21/10	12/15/00	05/21/10										
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg									
Organochlorine Pesticides																							
α - BHC	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
β - BHC	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
γ - BHC (Lindane)	4.99	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
δ - BHC	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Heptachlor	10	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Heptachlor epoxide	16	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Aldrin	40	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
alpha - Chlordane		NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
gamma - Chlordane		NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Chlordane (Technical)	0.37	NA	NA	216	U	NA	NA	407	U	NA	NA	205	U	NA	403	U							
Endosulfan alpha-	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Endosulfan beta-	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Endosulfan sulfate	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
DDE	0.33	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
DDD	0.33	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
DDT	0.33	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
DDT - total (DDE+DDD+DDT)	0.33	NA	NA			NA	NA			NA	NA			NA									
Dieldrin	0.0081	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Endrin	207	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Endrin aldehyde	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Endrin ketone	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Methoxychlor	--	NA	NA	53.9	U	NA	NA	102	U	NA	NA	51.4	U	NA	101	U							
Mirex		NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Toxaphene	--	NA	NA	216	U	NA	NA	407	U	NA	NA	205	U	NA	403	U							
oxy chlordane	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
cis - nonachlor	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
trans - nonachlor	--	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Semivolatile Organic Compounds																							
Halogenated Compounds																							
1,2-Dichlorobenzene	1,700	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
1,3-Dichlorobenzene	300	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
1,4-Dichlorobenzene	300	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
1,2,4-Trichlorobenzene	9,200	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
Hexachlorobenzene	19	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
2-Chloronaphthalene	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
Hexachloroethane	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
Hexachlorobutadiene	600	NA	NA	18.3	U	NA	NA	34.6	U	NA	NA	17.5	U	NA	34.3	U							
Hexachlorocyclopentadiene	400	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
2,2'-oxybis(1-chloropropane)	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
Bis-(2-chloroethoxy) methane	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
Bis-(2-chloroethyl) ether	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
4-Chlorophenyl-phenyl ether	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
4-bromophenyl-phenyl ether	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
3,3'-Dichlorobenzidine	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
4-Chloroaniline	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
Oxygen-Containing Compounds																							
Benzoic Acid	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
Benzyl Alcohol	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								
Dibenzofuran	--	100	JD	100	JD	275	20	JD	20	JD	545	U	200	JD	69	JD	67	328	U	12	U	565	U
Isophorone	--	NA	NA	NA		NA	NA	NA		NA	NA	NA		NA	NA								

	SLV for Portland Harbor ²	S-1W	S-2W	S-2W	S-2W												
		12/20/00	03/06/02	04/07/05	11/12/07	05/25/10	06/03/10	12/20/00	03/06/02	04/07/05							
Units		µg/L	µg/L														
Organochlorine Pesticides																	
α - BHC	0.0049	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
β - BHC	0.017	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
γ - BHC (Lindane)	0.052	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
δ - BHC	0.037	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Heptachlor	0.000079	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Heptachlor epoxide	0.000039	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Aldrin	0.00005	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
alpha - Chlordane						0.0284	U	0.0283	U								
gamma - Chlordane						0.0284	U	0.0283	U								
Chlordane (Technical)	0.00081	NA	NA	NA	NA	0.0284	U	0.355	U	NA	NA	NA					
Endosulfan alpha-	0.056	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Endosulfan beta-	0.056	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Endosulfan sulfate	89	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
DDE	0.00022	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
DDD	0.00031	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
DDT	0.00022	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
DDT - total (sum DDE+DDE+DDT)	0.2	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Dieldrin	0.000054	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Endrin	0.036	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Endrin aldehyde	0.3	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Endrin ketone	--	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Methoxychlor	0.03	NA	NA	NA	NA	0.0284	U	0.0758	U	NA	NA	NA					
Mirex						0.0284	U	0.0283	U								
Toxaphene	0.0002	NA	NA	NA	NA	0.0284	U	0.948	U	NA	NA	NA					
oxy chlordane	0.19	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
cis - nonachlor	0.19	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
trans - nonachlor	0.19	NA	NA	NA	NA	0.0284	U	0.0284	U	NA	NA	NA					
Semivolatile Organic Compounds																	
Halogenated Compounds																	
1,2-Dichlorobenzene	49	NA	NA	NA	NA	NA		NA		NA	NA	NA					
1,3-Dichlorobenzene	14	NA	NA	NA	NA	NA		NA		NA	NA	NA					
1,4-Dichlorobenzene	2.8	NA	NA	NA	NA	NA		NA		NA	NA	NA					
1,2,4-Trichlorobenzene	8.2	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Hexachlorobenzene	0.00029	NA	NA	NA	NA	0.0284	U	0.0283	U	NA	NA	NA					
2-Chloronaphthalene	490	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Hexachloroethane	3.3	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Hexachlorobutadiene	0.86	NA	NA	NA	NA	0.0284	U	0.0283	U	NA	NA	NA					
Hexachlorocyclopentadiene	5.2	NA	NA	NA	NA	NA		NA		NA	NA	NA					
2,2'-oxybis(1-chloropropane)	0.95	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Bis-(2-chloroethoxy) methane	--	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Bis-(2-chloroethyl) ether	0.06	NA	NA	NA	NA	NA		NA		NA	NA	NA					
4-Chlorophenyl-phenyl ether	0.06	NA	NA	NA	NA	NA		NA		NA	NA	NA					
4-bromophenyl-phenyl ether	--	NA	NA	NA	NA	NA		NA		NA	NA	NA					
3,3'-Dichlorobenzidine	0.028	NA	NA	NA	NA	NA		NA		NA	NA	NA					
4-Chloroaniline	150	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Organonitrogen Compounds																	
Nitrobenzene	3.4	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Aniline	12	NA	NA	NA	NA	NA		NA		NA	NA	NA					
2-Nitroaniline	110.0	NA	NA	NA	NA	NA		NA		NA	NA	NA					
3-Nitroaniline	3.2	NA	NA	NA	NA	NA		NA		NA	NA	NA					
4-Nitroaniline	3.2	NA	NA	NA	NA	NA		NA		NA	NA	NA					
N-Nitrosodimethylamine	0.00042	NA	NA	NA	NA	NA		NA		NA	NA	NA					
N-Nitroso-di-n-propylamine	0.0096	NA	NA	NA	NA	NA		NA		NA	NA	NA					
N-Nitrosodiphenylamine	6	NA	NA	NA	NA	NA		NA		NA	NA	NA					
2,4-Dinitrotoluene	3.4	NA	NA	NA	NA	NA		NA		NA	NA	NA					
2,6-Dinitrotoluene	37	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Carbazole	3.4	NA	NA	NA	NA	0.0377	U	0.377	U	NA	NA	NA					
Oxygen-Containing Compounds																	
Benzoic Acid	42	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Benzyl Alcohol	8.6	NA	NA	NA	NA	NA		NA		NA	NA	NA					
Dibenzofuran	3.7	0.01	J	0.014	U	0.014	U	0.0377	U	0.377	U	0.02	J	0.014	U	0.014	U
Isophorone	71					0.02		NA		NA		NA		NA			
Phenols and Substituted Phenols																	
Phenol	2560	NA	NA	NA	NA	1.89	U	1.89	U	NA	NA	NA					
2-Methylphenol (o-Cresol)	13	NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
3+4-Methylphenol (m,p-Cresol)	180	0.3	J	0.23	J	0.051	U	0.943	U	0.943	U	0.49	J	0.089	J	0.051	U
2,4-Dimethylphenol	730	NA	NA	NA	NA	0.50		0.943	U	0.943	U	NA	NA	NA	NA	NA	
2-Chlorophenol	30	NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
2,4-Dichlorophenol	110	NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
2,4,5-Trichlorophenol	3600	NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
2,4,6-trichlorophenol	2.4	NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
2,3,4,6-Tetrachlorophenol	1,100	NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
Pentachlorophenol	0.56	NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
4-Chloro-3-methylphenol		NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
2-Nitrophenol	150	NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
4-Nitrophenol	150	NA	NA	NA	NA	0.943	U	0.943	U	NA	NA	NA					
2,4-Dinitrophenol	73	NA	NA	NA	NA	1.89	U	1.89	U	NA	NA	NA					
Methyl-4,6-Dinitrophenol 2-	150	NA	NA	NA	NA	1.89	U	1.89	U	NA	NA	NA					
Phthalate Esters																	
Dimethylphthalate	3	NA	NA	NA	NA	1.89	U	1.89	U	NA	NA	NA					
Diethylphthalate	3	NA	NA	NA	NA	0.36	U	1.89	U	1.89	U	NA	NA	NA			
Di-n-butylphthalate	3	NA	NA	NA	NA	0.20	U	1.89	U	1.89	U	NA	NA	NA			
Butylbenzylphthalate	3	0.1	J	0.19	J	0.20		1.89	U	1.89	U	0.1	J	0.05	J	0.076	J
Di-n-octylphthalate	3	0.003	U	0.032	U	0.032	U	1.89	U	1.89	U	0.003	U	0.032	U	0.11	J
bis(2-Ethylhexyl)phthalate	2.2	NA	NA	NA	NA	0.20	U	1.89	U	1.02	NA	NA	NA	NA	NA	NA	

	SLV for Portland Harbor ²	S-1W	S-1W	S-1W	S-1W	S-1W	S-1W	S-1W	S-2W	S-2W	S-2W
		12/20/00	03/06/02	04/07/05	11/12/07	05/25/10	06/03/10	12/20/00	03/06/02	04/07/05	
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Polycyclic Aromatic Hydrocarbons											
Naphthalene	0.2	0.03 J	0.03 J	0.031 J	0.026 J	0.0755 U	0.0444	0.07 J	0.025 J	0.012 U	
2-Methylnaphthalene	0.2	0.03 J	0.02 J	0.012 U	0.020 UJ	0.0755 U	0.0755 U	0.05 J	0.014 J	0.012 U	
Acenaphthylene	0.2	0.01 J	0.01 U	0.037 J	0.020 U	0.0377 U	0.377 U	0.02 J	0.011 U	0.026 J	
Acenaphthene	0.2	0.02 J	0.01 U	0.009 U	0.020 UJ	0.0377 U	0.377 U	0.02 J	0.009 U	0.009 U	
Fluorene	0.2	0.02 J	0.01 U	0.026 J	0.020 UJ	0.0377 U	0.377 U	0.04 J	0.013 U	0.012 U	
Phenanthrene	0.2	0.07 J	0.03 J	0.190 J	0.065 J	0.0755 U	0.0755 U	0.25 J	0.043 J	0.045 J	
Anthracene	0.2	0.01 U	0.02 U	0.039 J	0.020 UJ	0.0377 U	0.377 U	0.02 J	0.016 U	0.015 U	
Fluoranthene	0.2	0.02 J	0.013 U	0.230 J	0.093 J	0.0377 U	0.377 U	0.099 J	0.022 J	0.059 J	
Pyrene	0.2	0.02 J	0.015 U	0.280 J	0.080 J	0.0207 J	0.377 U	0.12 J	0.025 J	0.059 J	
Benzo(a)anthracene	0.018	0.005 U	0.012 U	0.081 J	0.031 J	0.0377 U	0.377 U	0.03 J	0.013 U	0.012 U	
Chrysene	0.018	0.008 J	0.014 U	0.140 J	0.066 J	0.0377 U	0.377 U	0.06 J	0.015 U	0.014 U	
Benzo(b)fluoranthene	0.018	0.006 J	0.020 U	0.150 J	0.065 J	0.0377 U	0.377 U	0.04 J	0.021 U	0.021 J	
Benzo(k)fluoranthene	0.018	0.004 J	0.020 U	0.049 J	0.021 J	0.0377 U	0.377 U	0.03 J	0.021 U	0.020 U	
Benzo(a)pyrene	0.018	0.006 U	0.016 U	0.100 J	0.031 J	0.0377 U	0.377 U	0.03 J	0.017 U	0.020 U	
Indeno(1,2,3-cd)pyrene	0.018	0.006 J	0.024 U	0.089 J	0.035 J	0.189 U	0.377 U	0.04 J	0.026 U	0.020 U	
Dibenz(a,h)anthracene	0.018	0.004 U	0.031 U	0.031 U	0.02 UJ	0.189 U	0.377 U	0.009 J	0.032 U	0.020 U	
Benzo(g,h,i)perylene	0.2	0.007 J	0.017 U	0.140 J	0.041 J	0.189 U	0.377 U	0.06 J	0.018 U	0.020 U	
Other Analytes											
TPH Diesel	--	100 U	110 U	340 H	330 H	217	89.5	100 U	110 U	310 Y	
TPH Heavy Oil	--	250 U	270 U	880 O	610 O	576	623	250 U	260 U	430 O	
TPH-Gx	--	1,100 Z	110 U	100 U	250 U	100 U	100 U	100 U	130 Z	100 U	
Total Organic Carbon	--										
Total Suspended Solids	--					4520	6570				

¹At Portland Harbor sites, drinking water MCLs and PRGs are also

²The source of each SLV is

	SLV for Portland Harbor ²	S-2W	S-2W	S-2W	S-2W	S-3W	S-3W	S-3W	S-3W
		05/02/07	11/12/07	05/25/10	06/03/10	12/15/00	03/06/02	04/07/05	05/02/07
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Organochlorine Pesticides									
α - BHC	0.0049	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
β - BHC	0.017	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
γ - BHC (Lindane)	0.052	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
δ - BHC	0.037	NA	NA	0.0470	0.0283 U	NA	NA	NA	NA
Heptachlor	0.000079	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Heptachlor epoxide	0.000039	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Aldrin	0.00005	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
alpha - Chlordane				0.0284 U	0.0283 U				
gamma - Chlordane				0.0284 U	0.0283 U				
Chlordane (Technical)	0.00081	NA	NA	0.355 U	0.354 U	NA	NA	NA	NA
Endosulfan alpha-	0.056	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Endosulfan beta-	0.056	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Endosulfan sulfate	89	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
DDE	0.00022	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
DDD	0.00031	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
DDT	0.00022	NA	NA	0.0379 U	0.0283 U	NA	NA	NA	NA
DDT - total (sum DDE+DDE+DDT)	0.2	NA	NA	0.0379 U	0.0283 U	NA	NA	NA	NA
Dieldrin	0.000054	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Endrin	0.036	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Endrin aldehyde	0.3	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Endrin ketone	--	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Methoxychlor	0.03	NA	NA	0.0758 U	0.0755 U	NA	NA	NA	NA
Mirex				0.0284 U	0.0283 U				
Toxaphene	0.0002	NA	NA	0.948 U	0.943 U	NA	NA	NA	NA
oxy chlordane	0.19	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
cis - nonachlor	0.19	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
trans - nonachlor	0.19	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Semivolatile Organic Compounds									
Halogenated Compounds									
1,2-Dichlorobenzene	49	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	14	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	2.8	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	8.2	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	0.00029	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
2-Chloronaphthalene	490	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	3.3	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	0.86	NA	NA	0.0284 U	0.0283 U	NA	NA	NA	NA
Hexachlorocyclopentadiene	5.2	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-oxybis(1-chloropropane)	0.95	NA	NA	NA	NA	NA	NA	NA	NA
Bis-(2-chloroethoxy) methane	--	NA	NA	NA	NA	NA	NA	NA	NA
Bis-(2-chloroethyl) ether	0.06	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenyl ether	0.06	NA	NA	NA	NA	NA	NA	NA	NA
4-bromophenyl-phenyl ether	--	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	0.028	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	150	NA	NA	NA	NA	NA	NA	NA	NA
Organonitrogen Compounds									
Nitrobenzene	3.4	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	12	NA							
2-Nitroaniline	110.0	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	3.2	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	3.2	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	0.00042	NA							
N-Nitroso-di-n-propylamine	0.0096	NA							
N-Nitrosodiphenylamine	6	NA							
2,4-Dinitrotoluene	3.4	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	37	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	3.4	NA	NA	0.0377 U	0.0381 U	NA	NA	NA	NA
Oxygen-Containing Compounds									
Benzoic Acid	42	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	8.6	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	3.7	0.016 U	0.019 U	0.0377 U	0.0381 U	0.01 U	0.019 J	0.014 U	0.011
Isophorone	71	NA	NA	NA	NA	NA	NA	NA	NA
Phenols and Substituted Phenols									
Phenol	2560	NA	NA	1.89 U	1.9 U	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	13	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
3+4-Methylphenol (m,p-Cresol)	180	0.48 U	0.50 U	0.943 U	0.952 U	0.48 U	0.220 J	0.120 J	0.48 U
2,4-Dimethylphenol	730	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
2-Chlorophenol	30	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
2,4-Dichlorophenol	110	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
2,4,5-Trichlorophenol	3600	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
2,4,6-trichlorophenol	2.4	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	1,100	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
Pentachlorophenol	0.56	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
4-Chloro-3-methylphenol		NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
2-Nitrophenol	150	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
4-Nitrophenol	150	NA	NA	0.943 U	0.952 U	NA	NA	NA	NA
2,4-Dinitrophenol	73	NA	NA	1.89 U	1.9 U	NA	NA	NA	NA
Methyl-4,6-Dinitrophenol 2-	150	NA	NA	1.89 U	1.9 U	NA	NA	NA	NA
Phthalate Esters									
Dimethylphthalate	3	0.22	0.66	1.89 U	1.9 U	NA	NA	NA	0.32
Diethylphthalate	3	0.47	0.24	1.89 U	1.9 U	NA	NA	NA	0.20 U
Di-n-butylphthalate	3	0.21	0.35	1.89 U	1.9 U	NA	NA	NA	0.20 U
Butylbenzylphthalate	3	0.20 U	0.20 U	1.89 U	1.9 U	0.08 J	0.092 J	0.089 J	0.20 U
Di-n-octylphthalate	3	0.20 U	0.20 U	1.89 U	1.9 U	0.95 U	0.033 U	0.032 U	0.20 U
bis(2-Ethylhexyl)phthalate	2.2	1.4	6.7	1.55	2.22	NA	NA	NA	0.96 U

	SLV for Portland Harbor ²	S-2W	S-2W	S-2W	S-2W	S-3W	S-3W	S-3W	S-3W
		05/02/07	11/12/07	05/25/10	06/03/10	12/15/00	03/06/02	04/07/05	05/02/07
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Polycyclic Aromatic Hydrocarbons									
Naphthalene	0.2	0.015	0.020	0.0755 U	0.0762 U	0.07 J	0.025 J	0.012 U	0.0087
2-Methylnaphthalene	0.2	0.0077 U	0.019 U	0.0755 U	0.0762 U	0.10	0.012 U	0.012 U	0.0077 U
Acenaphthylene	0.2	0.019 D	0.019 U	0.0377 U	0.0381 U	0.10 U	0.011 U	0.011 U	0.0082 U
Acenaphthene	0.2	0.016 U	0.019 U	0.0377 U	0.0381 U	0.10 U	0.009 U	0.009 U	0.0077 U
Fluorene	0.2	0.016 U	0.019 U	0.0377 U	0.0381 U	0.02 J	0.013 U	0.012 U	0.0084
Phenanthrene	0.2	0.027	0.040	0.0755 U	0.0594	0.20	0.054 J	0.057 J	0.024
Anthracene	0.2	0.0077 U	0.019 U	0.0377 U	0.0381 U	0.10 U	0.015 U	0.015 U	0.0077 U
Fluoranthene	0.2	0.018	0.031	0.0408	0.0743	0.06 J	0.023 J	0.040 J	0.016
Pyrene	0.2	0.019	0.032	0.0386	0.0766	0.03 J	0.022 J	0.037 J	0.017
Benzo(a)anthracene	0.018	0.0077 U	0.019 U	0.0377 U	0.0376	0.007 J	0.012 U	0.012 U	0.0077 U
Chrysene	0.018	0.0077 U	0.019 U	0.0227	0.0506	0.03 J	0.015 U	0.014 U	0.0085
Benzo(b)fluoranthene	0.018	0.0077 U	0.019 U	0.0238	0.0543	0.01 J	0.020 U	0.020 U	0.0077 U
Benzo(k)fluoranthene	0.018	0.0077 U	0.019 U	0.0377 U	0.0253	0.008 J	0.020 U	0.020 U	0.0077 U
Benzo(a)pyrene	0.018	0.0077 U	0.019 U	0.0377 U	0.0568	0.095 U	0.017 U	0.016 U	0.0077 U
Indeno(1,2,3-cd)pyrene	0.018	0.0077 U	0.019 U	0.189 U	0.381 U	0.01 J	0.025 U	0.024 U	0.0077 U
Dibenz(a,h)anthracene	0.018	0.0077 U	0.019 U	0.189 U	0.381 U	0.19 U	0.031 U	0.031 U	0.0077 U
Benzo(g,h,i)perylene	0.2	0.0085	0.019 U	0.189 U	0.381 U	0.01 J	0.017 U	0.017 U	0.0077 U
Other Analytes									
TPH Diesel	--	250 U	500 H	238	79	510 Z	110 Z	550 Y	290 Z
TPH Heavy Oil	--	500 U	1,600 O	800	694	250 U	260 U	1,000 O	500 U
TPH-Gx	--	250 U	250 U	100 U	100 U	1,300 Z	110 U	120 Z	250 U
Total Organic Carbon	--								
Total Suspended Solids	--			11300	8460				

¹At Portland Harbor sites, drinking water MCLs and PRGs are also

²The source of each SLV is

	SLV for Portland Harbor ²	S-3W	S-3W	S-3W	S-4W	S-4W Duplicate	S-4W	S-4W	S-4W	S-4W
		11/12/07	05/25/10	06/03/10	12/15/00	12/15/00	04/09/02	04/07/05	05/02/07	11/12/07
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Organochlorine Pesticides										
α - BHC	0.0049	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
β - BHC	0.017	NA	0.0284 U	0.0472 U	NA	NA	NA	NA	NA	NA
γ - BHC (Lindane)	0.052	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
δ - BHC	0.037	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Heptachlor	0.000079	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	0.000039	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Aldrin	0.00005	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
alpha - Chlordane			0.0284 U	0.0284 U						
gamma - Chlordane			0.0284 U	0.0284 U						
Chlordane (Technical)	0.00081	NA	0.355 U	0.354 U	NA	NA	NA	NA	NA	NA
Endosulfan alpha-	0.056	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Endosulfan beta-	0.056	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	89	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
DDE	0.00022	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
DDD	0.00031	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
DDT	0.00022	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
DDT - total (sum DDE+DDE+DDT)	0.2	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Dieldrin	0.000054	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Endrin	0.036	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Endrin aldehyde	0.3	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Endrin ketone	--	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Methoxychlor	0.03	NA	0.0758 U	0.0755 U	NA	NA	NA	NA	NA	NA
Mirex			0.0284 U	0.0284 U						
Toxaphene	0.0002	NA	0.948 U	0.943 U	NA	NA	NA	NA	NA	NA
oxy chlordane	0.19	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
cis - nonachlor	0.19	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
trans - nonachlor	0.19	NA	0.0284 U	0.0283 U	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds										
Halogenated Compounds										
1,2-Dichlorobenzene	49	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	14	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	2.8	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	8.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobenzene	0.00029	NA	0.0284 U	0.0284 U	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	490	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	3.3	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachlorobutadiene	0.86	NA	0.0284 U	0.0284 U	NA	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	5.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-oxybis(1-chloropropane)	0.95	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis-(2-chloroethoxy) methane	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bis-(2-chloroethyl) ether	0.06	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenyl ether	0.06	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-bromophenyl-phenyl ether	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	0.028	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Chloroaniline	150	NA	NA	NA	NA	NA	NA	NA	NA	NA
Organonitrogen Compounds										
Nitrobenzene	3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	12	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Nitroaniline	110.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodimethylamine	0.00042	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	0.0096	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	6	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	3.4	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	37	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	3.4	NA	0.0207	0.0381 U	NA	NA	NA	NA	NA	NA
Oxygen-Containing Compounds										
Benzoic Acid	42	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzyl Alcohol	8.6	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	3.7	0.019 U	0.0377 U	0.0381 U	0.13	0.11	0.11	J 0.01	U 0.013	U 0.02
Isophorone	71	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenols and Substituted Phenols										
Phenol	2560	NA	1.89 U	1.9 U	NA	NA	NA	NA	NA	NA
2-Methylphenol (o-Cresol)	13	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
3+4-Methylphenol (m,p-Cresol)	180	0.49 U	0.943 U	0.952 U	0.2	J 0.2	J 0.051	U 0.051	U 0.48	U 0.47
2,4-Dimethylphenol	730	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
2-Chlorophenol	30	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
2,4-Dichlorophenol	110	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	3600	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
2,4,6-trichlorophenol	2.4	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	1,100	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
Pentachlorophenol	0.56	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol		NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
2-Nitrophenol	150	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
4-Nitrophenol	150	NA	0.943 U	0.952 U	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	73	NA	1.89 U	1.9 U	NA	NA	NA	NA	NA	NA
Methyl-4,6-Dinitrophenol 2-	150	NA	1.89 U	1.9 U	NA	NA	NA	NA	NA	NA
Phthalate Esters										
Dimethylphthalate	3	0.46	1.89 U	1.9 U	NA	NA	NA	NA	0.29	0.25
Diethylphthalate	3	0.22	1.89 U	1.9 U	NA	NA	NA	NA	0.20 U	0.26
Di-n-butylphthalate	3	0.20 U	1.89 U	1.9 U	NA	NA	NA	NA	0.20 U	0.19 U
Butylbenzylphthalate	3	0.20 U	1.89 U	1.9 U	0.05 J	0.04 J	0.14 J	0.10 J	0.20 U	0.19 U
Di-n-octylphthalate	3	0.20 U	1.89 U	1.9 U	0.95 U	0.96 U	0.032 U	0.032 U	0.20 U	0.19 U
bis(2-Ethylhexyl)phthalate	2.2	2.40	0.979	2.17	NA	NA	NA	NA	0.96 U	0.94 U

	SLV for Portland Harbor ²	S-3W	S-3W	S-3W	S-4W	S-4W Duplicate	S-4W	S-4W	S-4W	S-4W	S-4W
		11/12/07	05/25/10	06/03/10	12/15/00	12/15/00	04/09/02	04/07/05	05/02/07	11/12/07	
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Polycyclic Aromatic Hydrocarbons											
Naphthalene	0.2	0.0190 U	0.0755 U	0.0386	0.04 J	0.04 J	0.012 U	0.012 U	0.017 U	0.02 U	U
2-Methylnaphthalene	0.2	0.0190 U	0.0755 U	0.0387	0.09 J	0.10 J	0.012 U	0.012 U	0.014	0.02 U	U
Acenaphthylene	0.2	0.0190 U	0.0377 U	0.0381 U	0.10 U	0.10 U	0.011 U	0.011 U	0.0077 U	0.02 U	U
Acenaphthene	0.2	0.0190 U	0.0377 U	0.0381 U	0.14	0.12	0.085 J	0.009 U	0.0077 U	0.02 U	U
Fluorene	0.2	0.0190 U	0.0377 U	0.0381 U	0.36	0.34	0.170 J	0.012 U	0.0077 U	0.02 U	U
Phenanthrene	0.2	0.0290	0.0755 U	0.0762 U	0.46	0.35	0.073 J	0.032 J	0.033 U	0.02 U	U
Anthracene	0.2	0.0190 U	0.0377 U	0.0381 U	0.02 J	0.01 J	0.015 U	0.015 U	0.0077 U	0.02 U	U
Fluoranthene	0.2	0.021	0.0348	0.0381 U	0.06 J	0.05 J	0.01 U	0.01 U	0.053	0.020 U	U
Pyrene	0.2	0.019 U	0.0269	0.0381 U	0.19	0.16	0.10 J	0.10 J	0.078	0.033	U
Benzo(a)anthracene	0.018	0.019 U	0.0377 U	0.0381 U	0.03 J	0.02 J	0.012 U	0.012 U	0.012	0.02 U	U
Chrysene	0.018	0.019 U	0.0285	0.0381 U	0.12	0.09 J	0.014 U	0.014 U	0.030	0.02 U	U
Benzo(b)fluoranthene	0.018	0.019 U	0.0273	0.0381 U	0.03 J	0.03 J	0.020 U	0.020 U	0.034	0.02 U	U
Benzo(k)fluoranthene	0.018	0.019 U	0.0377 U	0.0381 U	0.02 J	0.01 J	0.020 U	0.020 U	0.0077 U	0.02 U	U
Benzo(a)pyrene	0.018	0.019 U	0.0377 U	0.0381 U	0.03 J	0.02 J	0.016 U	0.016 U	0.017	0.02 U	U
Indeno(1,2,3-cd)pyrene	0.018	0.019 U	0.189 U	0.381 U	0.02 J	0.02 J	0.024 U	0.024 U	0.020	0.02 U	U
Dibenz(a,h)anthracene	0.018	0.019 U	0.189 U	0.381 U	0.009 J	0.008 J	0.031 U	0.031 U	0.0077 U	0.02 U	U
Benzo(g,h,i)perylene	0.2	0.019 U	0.189 U	0.381 U	0.04 J	0.03 J	0.017 U	0.017 U	0.027	0.02 U	U
Other Analytes											
TPH Diesel	--	290 Y	291	103	280 Z	300 Z	1,300 F	440 Y	1,000 Z	740 Y	
TPH Heavy Oil	--	500 U	577	191	250 U	250 U	550 O	340 L	940 Z	500 U	
TPH-Gx	--	250 U	100 U	100 U	270 Z	260 Z	220 H	100 U	250 U	250 U	
Total Organic Carbon	--										
Total Suspended Solids	--		13600	5600							

¹At Portland Harbor sites, drinking water MCLs and PRGs are also

²The source of each SLV is

	SLV for Portland Harbor ²	S-4W	S-4W	
		05/25/10	06/03/10	
Units		µg/L	µg/L	
Metals/Inorganics (TOTAL)				
Aluminum (pH 6.5 - 9.0)	50	NA	NA	
Antimony	6	NA	NA	
Arsenic	0.045	1.1	0.744	
Arsenic III	190	NA	NA	
Cadmium	0.094	0.233	0.122	
Chromium, total	100	1.17	1.02	
Chromium, hexavalent	11	NA	NA	
Copper	2.7	14.6	12.1	
Lead	0.54	2.51	2.1	
Manganese	50	NA	NA	
Mercury	0.77	NA	NA	
Methyl Mercury	0.0028	NA	NA	
Nickel	16	NA	NA	
Selenium	5	NA	NA	
Silver	0.12	NA	NA	
Zinc	36	81.3	59.9	
Perchlorate	<24.5	NA	NA	
Cyanide	5.2	NA	NA	
Metals/Inorganics (DISSOLVED)				
Aluminum (pH 6.5 - 9.0)	50	NA	NA	
Antimony	6	NA	NA	
Arsenic	0.045	0.922	2.0	U
Arsenic III	190	NA	NA	
Cadmium	0.094	0.189	1.0	U
Chromium, total	100	0.789	2.00	U
Chromium, hexavalent	11	NA	NA	
Copper	2.7	10.4	8.42	
Lead	0.54	0.322	0.222	
Manganese	50	NA	NA	
Mercury	0.77	NA	NA	
Methyl Mercury	0.0028	NA	NA	
Nickel	16	NA	NA	
Selenium	5	NA	NA	
Silver	0.12	NA	NA	
Zinc	36	63.9	40.4	
Perchlorate	<24.5	NA	NA	
Cyanide	5.2	NA	NA	
PCBs Aroclors				
Aroclor 1016	0.96	0.0215	0.0377	U
Aroclor 1221	0.034	0.0215	0.0377	U
Aroclor 1232	0.034	0.0215	0.0377	U
Aroclor 1242	0.034	0.0215	0.0377	U
Aroclor 1248	0.034	0.0215	0.0377	U
Aroclor 1254	0.033	0.0215	0.0377	U
Aroclor 1260	0.034	0.0215	0.0377	U
Aroclor 1262	--	NA	NA	
Aroclor 1268	--	NA	NA	
Total PCBs	0.000064	NA	NA	
PCB Congeners	--	NA	NA	
All 209 PCB congener target analytes	--	NA	NA	
3,3',4,4'-TCB	--	NA	NA	
3,4,4',5'-TCB	--	NA	NA	
2,3,3',4,4'-PeCB	--	NA	NA	
2,3,4,4',5'-PeCB	--	NA	NA	
2,3',4,4',5'-PeCB	--	NA	NA	
2',3,4,4',5'-PeCB	--	NA	NA	
3,3',4,4',5'-PeCB	--	NA	NA	
2,3,3',4,4',5'-HxCB	--	NA	NA	
2,3,3',4,4',5'-HxCB	--	NA	NA	
2,3',4,4',5,5'-HxCB	--	NA	NA	
3,3',4,4',5,5'-HxCB	--	NA	NA	
2,3,3',4,4',5,5'-HpCB	--	NA	NA	

	SLV for Portland Harbor ²	S-4W		S-4W	
		05/25/10		06/03/10	
Units		µg/L		µg/L	
Organochlorine Pesticides					
α - BHC	0.0049	0.0283	U	0.0284	U
β - BHC	0.017	0.0376		0.0284	U
γ - BHC (Lindane)	0.052	0.0283	U	0.0284	U
δ - BHC	0.037	0.0519		0.0474	U
Heptachlor	0.000079	0.0283	U	0.0284	U
Heptachlor epoxide	0.000039	0.0283	U	0.0284	U
Aldrin	0.00005	0.0283	U	0.0284	U
alpha - Chlordane		0.0283	U	0.0284	U
gamma - Chlordane		0.0283	U	0.0284	U
Chlordane (Technical)	0.00081	0.354	U	0.355	U
Endosulfan alpha-	0.056	0.0283	U	0.0284	U
Endosulfan beta-	0.056	0.0283	U	0.0284	U
Endosulfan sulfate	89	0.0283	U	0.0284	U
DDE	0.00022	0.0283	U	0.0284	U
DDD	0.00031	0.0283	U	0.0284	U
DDT	0.00022	0.0283	U	0.0284	U
DDT - total (sum DDE+DDE+DDT)	0.2	0.0283	U	0.0284	U
Dieldrin	0.000054	0.0283	U	0.0284	U
Endrin	0.036	0.0283	U	0.0284	U
Endrin aldehyde	0.3	0.0283	U	0.0284	U
Endrin ketone	--	0.0283	U	0.0284	U
Methoxychlor	0.03	0.0755	U	0.0204	
Mirex		0.0283	U	0.0284	U
Toxaphene	0.0002	0.943	U	0.948	U
oxy chlordane	0.19	0.0283	U	0.0284	U
cis - nonachlor	0.19	0.0283	U	0.0284	U
trans - nonachlor	0.19	0.0283	U	0.0284	U
Semivolatile Organic Compounds					
Halogenated Compounds					
1,2-Dichlorobenzene	49	NA		NA	
1,3-Dichlorobenzene	14	NA		NA	
1,4-Dichlorobenzene	2.8	NA		NA	
1,2,4-Trichlorobenzene	8.2	NA		NA	
Hexachlorobenzene	0.00029	0.0283	U	0.0284	U
2-Chloronaphthalene	490	NA		NA	
Hexachloroethane	3.3	NA		NA	
Hexachlorobutadiene	0.86	0.0283	U	0.0284	U
Hexachlorocyclopentadiene	5.2	NA		NA	
2,2'-oxybis(1-chloropropane)	0.95	NA		NA	
Bis-(2-chloroethoxy) methane	--	NA		NA	
Bis-(2-chloroethyl) ether	0.06	NA		NA	
4-Chlorophenyl-phenyl ether	0.06	NA		NA	
4-bromophenyl-phenyl ether	--	NA		NA	
3,3'-Dichlorobenzidine	0.028	NA		NA	
4-Chloroaniline	150	NA		NA	
Organonitrogen Compounds					
Nitrobenzene	3.4	NA		NA	
Aniline	12	NA		NA	
2-Nitroaniline	110.0	NA		NA	
3-Nitroaniline	3.2	NA		NA	
4-Nitroaniline	3.2	NA		NA	
N-Nitrosodimethylamine	0.00042	NA		NA	
N-Nitroso-di-n-propylamine	0.0096	NA		NA	
N-Nitrosodiphenylamine	6	NA		NA	
2,4-Dinitrotoluene	3.4	NA		NA	
2,6-Dinitrotoluene	37	NA		NA	
Carbazole	3.4	0.0561	U	0.0755	U
Oxygen-Containing Compounds					
Benzoic Acid	42	NA		NA	
Benzyl Alcohol	8.6	NA		NA	
Dibenzofuran	3.7	0.0561	U	0.0755	U
Isophorone	71	NA		NA	
Phenols and Substituted Phenols					
Phenol	2560	2.8	U	3.77	U
2-Methylphenol (o-Cresol)	13	1.4	U	1.89	U
3+4-Methylphenol (m,p-Cresol)	180	1.4	U	1.89	U
2,4-Dimethylphenol	730	1.4	U	1.89	U
2-Chlorophenol	30	1.4	U	1.89	U
2,4-Dichlorophenol	110	1.4	U	1.89	U
2,4,5-Trichlorophenol	3600	1.4	U	1.89	U
2,4,6-trichlorophenol	2.4	1.4	U	1.89	U
2,3,4,6-Tetrachlorophenol	1,100	1.4	U	1.89	U
Pentachlorophenol	0.56	1.4	U	1.89	U
4-Chloro-3-methylphenol		1.4	U	1.89	U
2-Nitrophenol	150	1.4	U	1.89	U
4-Nitrophenol	150	1.4	U	1.89	U
2,4-Dinitrophenol	73	2.8	U	3.77	U
Methyl-4,6-Dinitrophenol 2-	150	2.8	U	3.77	U
Phthalate Esters					
Dimethylphthalate	3	2.8	U	3.77	U
Diethylphthalate	3	2.8	U	3.77	U
Di-n-butylphthalate	3	2.8	U	3.77	U
Butylbenzylphthalate	3	2.8	U	3.77	U
Di-n-octylphthalate	3	2.8	U	3.77	U
bis(2-Ethylhexyl)phthalate	2.2	1.45		3.77	U

	SLV for Portland Harbor ²	S-4W		S-4W	
		05/25/10		06/03/10	
Units		µg/L		µg/L	
Polycyclic Aromatic Hydrocarbons					
Naphthalene	0.2	0.112	U	0.151	U
2-Methylnaphthalene	0.2	0.112	U	0.151	U
Acenaphthylene	0.2	0.0561	U	0.0755	U
Acenaphthene	0.2	0.0561	U	0.0755	U
Fluorene	0.2	0.0561	U	0.0755	U
Phenanthrene	0.2	0.112	U	0.151	U
Anthracene	0.2	0.0561	U	0.0755	U
Fluoranthene	0.2	0.0561	U	0.0755	U
Pyrene	0.2	0.0452		0.0436	
Benzo(a)anthracene	0.018	0.0561	U	0.0755	U
Chrysene	0.018	0.0561	U	0.0755	U
Benzo(b)fluoranthene	0.018	0.0561	U	0.0755	U
Benzo(k)fluoranthene	0.018	0.0561	U	0.0755	U
Benzo(a)pyrene	0.018	0.0561	U	0.0755	U
Indeno(1,2,3-cd)pyrene	0.018	0.187	U	0.0755	U
Dibenz(a,h)anthracene	0.018	0.187	U	0.0755	U
Benzo(g,h,i)perylene	0.2	0.187	U	0.0755	U
Other Analytes					
TPH Diesel	--	400		252	
TPH Heavy Oil	--	610		460	
TPH-Gx	--	100	U	100	U
Total Organic Carbon	--				
Total Suspended Solids	--	17500		15300	

¹At Portland Harbor sites, drinking water MCLs and PRGs are also

²The source of each SLV is

SOURCE CONTROL DATA GAPS WORKPLAN

MCCALL OIL AND CHEMICAL, PORTLAND, OREGON

Prepared for

McCall Oil and Chemical Corporation
Portland, Oregon

Prepared by

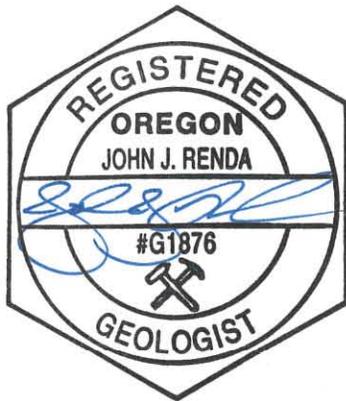
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August 2010

Source Control Data Gaps Workplan

McCall Oil and Chemical, Portland, Oregon

The material and data in this report were prepared under the supervision and direction of the undersigned.



John J. Renda, R.G.
Anchor Environmental, L.L.C.

A handwritten signature in blue ink, appearing to read "John Edwards".

John Edwards, R.G. C.E.G.
Anchor Environmental, L.L.C.

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1 BACKGROUND

A Remedial Investigation (RI) report was prepared for the McCall Oil & Chemical Corporation (MOCC) and former Great Western Chemical Company (GWCC) facility (Site) in Portland, Oregon (Anchor, October 2008). The remedial investigation was conducted pursuant to a “Voluntary Agreement for Remedial Investigation and Source Control Measures” (the Agreement) entered into between MOCC/GWCC and the DEQ on May 8 as amended on August 13, 2000. Since July 15, 2001, the former GWCC facility has been operated by Brenntag Pacific (Brenntag) and MOCC retains responsibility for meeting the obligations of the Agreement. The RI Report is focused on characterizing site media and performing an initial screening of potential risks to site workers from exposures to site soil, groundwater, stormwater, and catch basin sediments. A Level I Ecological Scoping Assessment was performed and it was determined that there are no significant exposure pathways to affect terrestrial ecological receptors.

A Source Control Evaluation (SCE) Report for the Site was submitted to DEQ in February 2009 (Anchor QEA, 2009). The report included an assessment of the stormwater, storm sediment, groundwater, and bank soil to determine whether historical or ongoing Site activities may be impacting the beneficial uses of the Willamette River. The assessment primarily focused on ecological and human receptors of the Willamette River. The primary potential exposure pathways include direct contact of aquatic organisms with contaminants in river water or sediment, ingestion of contaminated fish or shellfish from the river by humans or wildlife, and consumption of drinking water from the river. Upland exposure pathways for industrial (occupational) Site workers, trench and construction workers, and terrestrial wildlife were separately evaluated in the Remedial Investigation Report for this facility.

On August 28, 2009, MOCC received DEQ comments on the October 2008 RI Report and the February 2009 SCE Report. On February 4, 2010, Anchor QEA, on behalf of MOCC, provided responses to the August 2009 Comment letter.

In an April 23, 2010 email to Ted McCall, Keith Johnson, Manager of the DEQ Northwest Region Environmental Cleanup Program, provided an outline of “next steps” requested to complete the source control determination (SCD). A copy of the body of the email is provided below. This work plan has been written to address the next steps requested by DEQ as shown below.

Agreed-upon next steps for completion of a SCD

- Stormwater Drainage Map Development
- Evaluate Groundwater Pathway for Arsenic and TPH
- Perform an Evaluation of Groundwater Infiltration to Stormwater System and Utilities.

Summary of and Proposals for Outstanding Issues

- Issue 1: Finalizing the COI list requiring analysis for each SC pathway

Existing Request-DEQ requested that the following list of constituents should be considered in all future site screenings for all pathways: TPH, BTEX, Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Nickel, Silver, Zinc), Organochlorine Pesticides, PCBs, PAHs, Chlorinated Volatiles, and Semi-Volatiles (including all SLV listed Phthalates). Ensure the laboratory is directed to use sample cleanup methods to achieve required MRLs. The reporting of PCBs should include both total PCBs and individual Aroclors. Any proposed exclusion of specific testing for pathway specific COIs needs to be reviewed and approved by DEQ prior to implementation.

Status: DEQ will evaluate the COI list for specific site investigations but it is anticipated that much of the initial proposed list will be needed. DEQ proposes a potential focusing of proposed the COIs list for each task discussed below.

- Issue 2: Completing an evaluation of erodible soils

Due to the detections of PCBs in stormwater sediment additional sampling of stormwater solids and surficial soil is required to complete a SCD. Stormwater solids and river bank surficial soil sampling points should be selected to evaluate previous PCB detections and address other site COIs data gaps. Catch basin sediment samples and riverbank soil samples should include all COIs in addition to PCBs. An erodible soil evaluation work plan for the river bank sampling and stormwater sediment sampling should be developed and submitted for DEQ approval.

Status: DEQ proposes collection of catch basin solids at locations S1 through S-4 for organochlorine pesticides. If organochlorine pesticides are not detected at reporting limits or below SLVs then the analysis of stormwater samples for pesticides will not be required.

DEQ proposes collection of two composite bank samples that would be screened for following COIs: PCB Aroclors (Total and SLV List), SVOCs that include the six SLV phthalates, organochlorine pesticides, PAHs, TPH (gas, diesel, and oil), chlorinated VOCs, Arsenic, Cadmium, Chromium, Copper, Lead, and Zinc. The two bank samples should be a three point composite representative of conditions at the site.

- Issue 3: Completion of Stormwater Sampling

A minimum of two stormwater sampling events should be performed (minimum of one first flush and one representative storm event) for locations S-1 through S-4. Stormwater samples should be analyzed for the full COIs list. Additional stormwater sampling locations may be required based on the results of the stormwater sediment sample screenings and stormwater map development. Stormwater sampling locations should be approved by DEQ.

Status: DEQ proposes collection of two stormwater sample events from locations S-1 through S-4. One stormwater sample event should be collected within the first 30 minutes of stormwater flow and the second event after the first three hours of stormwater flow. Stormwater samples should be analyzed for the following COIs: PCB Aroclors (Total and SLV List), SVOCs that include the six SLV phthalates, organochlorine pesticides (only requested if stormwater sediment or bank samples detect pesticides above SLVs or detection limits), PAHs, TPH (gas, diesel, and oil), Arsenic, Cadmium, Chromium, Copper, Lead, Zinc).

Work plans for all tasks should be submitted to DEQ for discussion and approval. The additional site data should be submitted after each sampling event to allow discussion of results. Please present the results of soil and stormwater sampling on the DEQ recommended SLV screening data tables.

A schedule of specific deliverables and agency action dates should be developed. DEQ will make every effort to comply with the schedule to move the site forward to a SCD.

Based on the results of this additional work, DEQ will be in a position to either complete a SCD and/or work with McCall on next steps for SC implementation.

2 REQUIRED TASKS FOR COMPLETION OF A SOURCE CONTROL DETERMINATION

Review of the April 23, 2010 DEQ e-mail shows that there are six tasks required by DEQ to complete the SCD. MOCC has agreed to conduct the DEQ-requested additional source control investigations as described in Section 1. Some of these tasks have been partially

completed, and others will be completed following DEQ approval of this workplan. This section further describes our understanding of these tasks and provides information on implementation status of each task.

2.1 Prepare Stormwater Drainage Map

The February 2009 SCE report provided a detailed description of stormwater best management practices in use at the site, including catch basin particulate filters and cleaning of catch basins. Separate stormwater drainage maps for the MOCC and GWCC were provided in Appendix A of the February 2009 SCE report. Those maps will be combined into a single map that shows drainage basin boundaries and estimated direction of runoff. Colors and/or shading will be used to differentiate drainage areas, paved and unpaved areas. The new map will show the existing stormdrain and catchbasin configuration and also depict any recent or planned changes to the system (e.g., closures of inlets or changes in stormwater management). The map will identify the sampling points used during the RI and source control investigations.

2.2 Evaluate Groundwater Pathway for Arsenic and TPH

A workplan for the evaluation of this groundwater pathway near monitoring wells EX-2 and EX-3 is in Section 3.1.

2.3 Evaluate Groundwater Infiltration to Stormwater System and Utilities.

A workplan for the evaluation of potential groundwater infiltration to the Site sewers and other underground utilities is in Section 3.2.

2.4 Finalize COI List

The testing of erodible soils, stormwater, catch basin sediment, groundwater, and river water will be consistent with the COI list recommended by DEQ.

2.5 Evaluate erodible soils

A plan for sampling erodible soils is in Section 3.3.

2.6 Complete Stormwater Sampling

The DEQ-requested stormwater and catch basin sediment sampling was completed in May and June 2010 under the Revised Stormwater and Catch Basin Sediment Sampling Plan (Anchor QEA, May 24, 2010). A status report providing the results of the stormwater and

catch basin sediment sampling was submitted to DEQ on July 23, 2010. The status report includes a description of the sampling task and tables that screen the data against DEQ SLVs. An assessment of the data will be provided in the Source Control Evaluation Report.

3 FIELD SAMPLING PLAN

Section 3 contains a general description of the various investigations to be conducted under this workplan, including the technical rationale underlying the sampling plan, sample site selection, sampling methods, and laboratory testing information. The quality assurance details of the plan are in Section 4.

3.1 Groundwater Pathway TZW Assessment for Arsenic

As described in the February 2009 SCE report, arsenic concentrations in groundwater from shoreline monitoring wells EX-2 and EX-3 have historically been elevated above background. DEQ has requested that the groundwater to surface water pathway be further assessed in this area of the shoreline to determine if source control is needed. As discussed with DEQ in previous conversations, the planned approach is to obtain representative samples of transition zone sediment porewater (TZW) near the shoreline and use that data to determine if the arsenic concentrations are high enough to warrant source control. The transition zone is the depth below mudline where river water and groundwater intermix and the sediment porewater samples will be representative of that zone.

Subsurface profiles were drawn through the locations of monitoring wells EX-2 and EX-3. The locations of the subsurface profiles are shown on Figure 1. The subsurface profiles are Figures 2 and 3. The profiles show the contact between the fill and underlying alluvium, the groundwater table and river elevations. These drawings are provided to show that the proposed sediment porewater sampling stations shown on Figure 1 are in the projected nearshore groundwater discharge area.

This sediment porewater sampling program is designed to obtain porewater samples that are representative of the shoreline area where shallow groundwater discharges to the river. Figure 1 shows that there are two nearshore transects. Transect A will be located at the shoreline and Transect B will be located approximately 20 feet riverward of the shoreline. There are three sample locations along Transect A and two locations along Transect B, for a total of five sample locations.

Porewater samples will be collected using stainless steel drive points (Solinst 615 drive point or similar) with built in screens, connected to steel casing. The drive point will be installed using a hand operated slide hammer, or a similar method, to the desired depth below

mudline. Two drive points will be installed at each of the five locations. At each location one drivepoint will be installed with the screen from about 1 to 2 feet below mudline, and the other drivepoint screen from about 3 to 4 feet below mudline.

The plan is to obtain the samples in late Summer or early Fall when the river is generally at seasonally low water levels. With the river discharge at seasonal lows there is less mixing of groundwater and river water in the TZW. Samples obtained during that period should represent the highest seasonal groundwater quality influence on TZW porewater. During that time of the year the nearshore river mudline depth is much less, providing easier access for drive point installation. Note that the proposed sample locations are between the shoreline and the McCall dock, where there is little or no public boat traffic. Following installation the drive point casings will be marked with flags and floating buoys. The drive points will be in place for approximately 72 hours, after which they will be withdrawn.

Two porewater samples will be collected from each drive point at each location; one representing high river tide conditions (within 2 hours of peak high tide) and one representing river low tide conditions (within 2 hours of peak low tide).

River water samples will also be collected at each sampling event. At each location a river water sample will be obtained at an approximate depth of one foot above mudline and at one foot below the water surface. Background river water samples will also be obtained from similar depths at a location approximately 200 feet offshore from the property line with the Tube Forging property.

Horizontal positioning at each sampling location will be determined using a handheld global positioning system (GPS) unit. Station positions will be recorded in latitude and longitude to the nearest 0.01 second in the North American Datum (NAD) 1983. Mudline elevation of each sampling station will be determined by measuring the water depth with a lead line and corrected for tidal elevation. River level elevations will be obtained from the Morrison Bridge gage located approximately 4.5 miles upstream from the sampling area.

To obtain the porewater samples, polyethylene tubing will be inserted down the casing and attached to a barbed fitting directly above the screen. Then the porewater sample will be collected with a peristaltic pump using low flow sampling techniques. Before sample collection, a minimum of one casing volume of water will be removed. Field water-quality parameters (pH, specific conductance, oxidation-reduction potential (ORP), dissolved oxygen (DO), and temperature) will be measured with portable, calibrated meters during purging. To obtain river water samples a weight will be fixed to polyethylene tubing and the tubing will be lowered to the desired depth.

Porewater samples will be submitted for laboratory testing for dissolved arsenic, iron, and manganese. The samples will also be lab tested for total organic carbon (TOC). The porewater and river water samples will be field tested for the parameters listed on Table 1, including pH, specific conductance, temperature, DO, ORP, and turbidity.

The river water samples will be archived until the laboratory results for testing of the porewater samples have been received. The porewater data will be reviewed to determine the three porewater sample locations that had the highest dissolved arsenic concentrations in the 1 to 2 ft sample interval. All of the river water samples obtained at those three locations will then be tested for dissolved arsenic and TOC.

The drive points will be washed prior to installation using the decontamination materials described in Section 4.4.1. Any equipment that contacts the sample and is intended to be reused will be properly decontaminated between samples. Polyethylene tubing will be dedicated to each drive point, so tubing decontamination will not be needed.

3.2 Groundwater Pathway Assessment for Infiltration to Underground Utilities

This assessment will be done in the following steps.

1. Review the as-built drawings or other information sources to determine the invert elevations of the sewers and other underground utilities shown on Figure 4.
2. Review the historic groundwater elevation data from Site monitoring wells and compare that data with the invert elevations obtained from Step 1.
3. Prepare a list of the sewer lines or other utilities where the invert elevation is lower than the groundwater elevation.
4. Evaluate the list to determine which of the underground utilities should be further evaluated for infiltration and meet with DEQ to discuss the findings.
5. If necessary develop a plan to further assess the potential for infiltration of groundwater into the underground utilities. Depending upon the findings from Steps 1 through 4, further assessment could include sampling of water from the sewers, or from sewer line backfill.

Anchor QEA has done a preliminary review of the information that will be used for steps 1 through 3. A map of Site underground sewers and utilities is on Figure 4. Based on the preliminary review, all of the Site stormdrain catch basins and stormdrain pipelines are above groundwater elevations and thus not susceptible to groundwater infiltration. However we need to confirm the stormsewer elevations. We will also review available McCall and City of Portland files to check for the invert elevations of the Site sanitary sewer and the City-owned sewer line that is parallel to Front Avenue.

3.3 Erodible Soil Sampling Plan

To address the issue of potentially erodible soils, two composite bank samples will be collected and analyzed for the following COIs: PCB Aroclors, SVOCs that include the six SLV phthalates, organochlorine pesticides, PAHs, TPH (gas, diesel, and oil), Arsenic, Cadmium, Chromium, Copper, Lead, and Zinc. As shown on Figure 1 there is a narrow zone near the top of river bank where patches of unvegetated soil are present. Field reconnaissance of this area has shown evidence of minor soil erosion during historic rainfall events. For this assessment, six representative locations will be identified to obtain discrete surficial soil samples. The six samples will be composited in two groups of three to create two composite samples for laboratory testing. A stainless steel mixing bowl will be used to prepare the composite samples, as further described in Section 4.

3.4 Groundwater Sampling Plan

One groundwater sample will be collected from monitoring wells EX-2 and EX-3. The samples will be obtained during the same week that the river TZW sampling occurs. Prior to sampling, wells will be purged of at least three casing volumes of water until field parameters (temperature, pH, and specific conductivity) stabilize, or the wells purge dry. Temperature, pH, and specific conductivity values will be recorded on field sampling data sheets after each casing volume is removed. ORP and DO will be also recorded before sample collection.

The monitoring wells will be purged and sampled using a peristaltic pump and dedicated pump tubing connected to dedicated polyethylene tubing. As purging for each well is finished, pumping rates will be reduced, and samples will be collected directly from the pump tubing. An inline filter will be used to obtain dissolved metals samples. Samples will

be submitted for laboratory testing for dissolved arsenic, iron, and manganese. The samples will also be lab tested for total organic carbon (TOC).

4 FIELD QUALITY ASSURANCE AND QUALITY CONTROL

This section describes the field quality assurance and quality control (QAQC) procedures and protocols that will be used with all media sampling, documentation, chain of custody, and laboratory testing.

4.1 Field Duplicates

Field duplicates of TZW and river water samples will be collected (5 percent frequency) from the sampling locations. We are only obtaining groundwater samples from two wells so no field duplicate groundwater samples will be collected. The field duplicates consist of collecting twice the amount of needed water from the chosen location and splitting it into two unique samples (the original sample and a duplicate). The duplicate sample will be processed in exactly the same way as the original sample and will be submitted to the laboratory as blind samples. The samples will be analyzed for the same parameters as the other regular field samples.

4.2 Rinsate and Field Blanks

Rinsate and field blank samples will be collected to evaluate the efficiency of field decontamination procedures. One rinsate blank and one field blank will be collected for water sampling methods. The rinsate blank will consist of rinsing down a drive point before sample collection and decontamination with distilled water and collecting the rinsate. The field blank will be collected by pouring unused distilled water directly in the sampling containers.

4.3 Field Documentation

A complete record of all field activities will be maintained including the following:

- Documentation of field activities on daily log forms.
- Documentation of samples collected for analysis.

The field personnel will maintain field notes, which will consist of daily log forms and field sampling data sheets (FSDSs). On-site activities, including health and safety entries, and field observations will be documented on the daily log forms and FSDSs. Entries will be made in indelible ink. The daily log forms and FSDSs are intended to provide sufficient data and observations to enable readers to reconstruct events that occurred during the sampling period. These entries will include the following:

- Date and time
- Sampling personnel
- Weather
- Sampling location
- Water depth
- Sample depth
- Characteristics or other observations of sediment sample
- Penetration depth
- Other comments

4.4 Sample Handling

This section describes the sample containers, sample handling and storage, chain-of-custody forms, and sample shipping procedures to be used on this project.

The analytical lab will provide pre-cleaned, certified sample containers, for each EPA test method. Prior to shipping, the analytical laboratory will add preservative, where required.

Sample containers, instruments, working surfaces, technician protective gear, and other items that may come into contact with sample material must meet high standards of cleanliness.

Working surfaces and instruments will be thoroughly cleaned and decontaminated to minimize outside contamination between sampling events. Disposable gloves will be discarded after processing each station and replaced prior to handling decontaminated instruments or work surfaces.

4.4.1 Field Equipment Decontamination

In general, sampling equipment will be dedicated to each sampling location. To prevent sample cross contamination, sampling and processing equipment that comes into contact with the samples will undergo the following decontamination procedures prior to and between collection activities in accordance with EPA protocols (EPA 2001). Such sampling equipment will be decontaminated using the following procedure:

1. Rinse with potable water and wash with scrub brush until free of particles.
2. Wash with phosphate-free detergent (e.g., Alconox®).
3. Visually inspect the sampler and repeat the scrub and rinse step, if necessary until all visual signs of contamination are absent.
4. Rinse with potable water.

4.4.2 Sample Disposal and Waste Handling Practices

Remaining fluids used for decontamination of sampling equipment, and other disposable wastes (e.g., gloves, paper towels, etc.) will be placed into appropriate containers and staged on-site for disposal.

4.4.3 Sample Transport and Chain-of-Custody Procedures

Samples will be transported in appropriate containers to the analytical laboratory after preparation is completed. Specific sample shipping procedures will be as follows:

- The shipping containers will be clearly labeled with sufficient information (name of project, time and date container was sealed, and person sealing the container) to enable positive identification
- Individual sample containers will be packed to prevent breakage and transported in a sealed ice chest or other suitable container
- Glass jars will be separated in the shipping container by shock absorbent material (e.g., bubble wrap) to prevent breakage
- Ice will be placed in separate plastic bags and sealed
- A sealed envelope containing chain-of-custody forms will be enclosed in a plastic bag inside the cooler

-
- The cooler lids will be secured by wrapping the coolers in strapping tape
 - Signed and dated chain-of-custody seals will be placed on all coolers prior to shipping
 - Each cooler or container containing the samples for analysis will be transported to the laboratory under chain of custody documentation.

Upon transfer of sample possession to the analytical laboratory, the persons transferring custody of the sample container will sign the chain-of-custody form. Upon receipt of samples at the laboratory, the shipping container seal will be broken and the condition of the samples recorded by the recipient. Chain-of-custody forms will be used internally in the lab to track sample handling and final disposition.

5 SCHEDULE

Following is the suggested project schedule.

1. DEQ to provide approval or written comments on workplan by September 15, 2010.
2. McCall to revise and resubmit workplan within 15 days of receiving comments from DEQ.
3. McCall to complete all sampling within 45 days of receipt of DEQ approval. The TZW sampling can only be done during Summer and Fall river low flow conditions, so it is important that DEQ provide approval or comments as soon as possible.
4. McCall to provide DEQ with the source control evaluation report within 45 days of validation of the lab report.
5. DEQ to approve or provide comments on the source control evaluation report within 45 days.

6 REFERENCES

Anchor Environmental, L.L.C. (Anchor) October 2008. *Remedial Investigation Report*.
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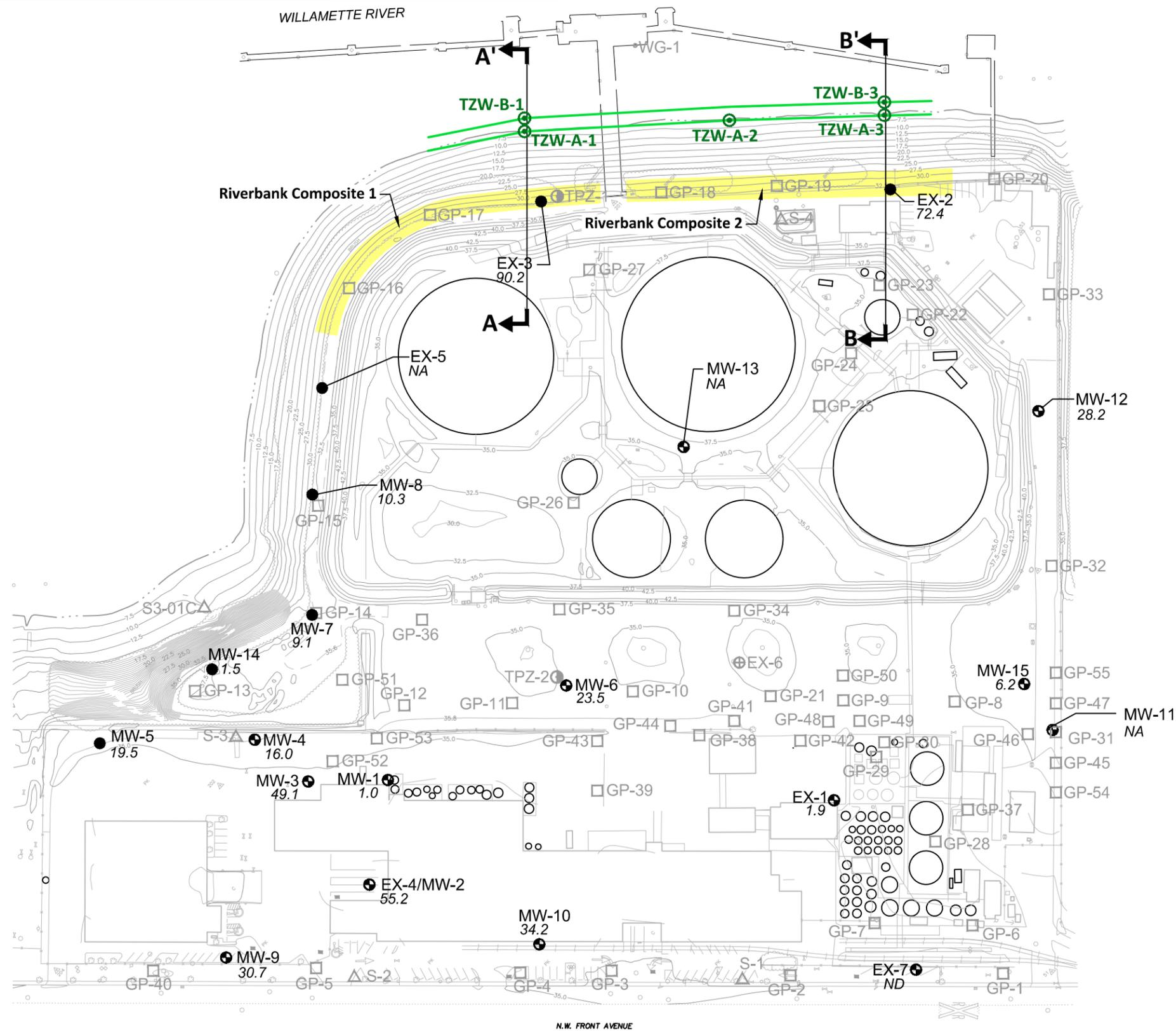
TABLE

Table 1
Sampling Matrix
TZW, River Water, and Groundwater Sampling
McCall Oil and Chemical Site
Portland, Oregon

Sample Location	Depth (ft bml)	Tide (H or L)	Field Parameter						Laboratory Testing	
			pH	Cond	Temp	DO	ORP	Turbidity	Dissolved Arsenic	Total Organic Carbon
Transition Zone Water										
TZW-A-1	1-2	H+L	X	X	X	X	X	X	X	X
	3-4	H+L	X	X	X	X	X	X	X	X
TZW-A-2	1-2	H+L	X	X	X	X	X	X	X	X
	3-4	H+L	X	X	X	X	X	X	X	X
TZW-A-3	1-2	H+L	X	X	X	X	X	X	X	X
	3-4	H+L	X	X	X	X	X	X	X	X
TZW-B-1	1-2	H+L	X	X	X	X	X	X	X	X
	3-4	H+L	X	X	X	X	X	X	X	X
TZW-B-3	1-2	H+L	X	X	X	X	X	X	X	X
	3-4	H+L	X	X	X	X	X	X	X	X
Groundwater										
EX-2	NA	NA	X	X	X	X	X	X	X	X
EX-3	NA	NA	X	X	X	X	X	X	X	X
River Water*										
TZW-A-1	near mudline	H+L	X	X	X	X	X	X	X	X
	near surface	H+L	X	X	X	X	X	X	X	X
TZW-A-2	near mudline	H+L	X	X	X	X	X	X	X	X
	near surface	H+L	X	X	X	X	X	X	X	X
TZW-A-3	near mudline	H+L	X	X	X	X	X	X	X	X
	near surface	H+L	X	X	X	X	X	X	X	X
TZW-A-4	near mudline	H+L	X	X	X	X	X	X	X	X
	near surface	H+L	X	X	X	X	X	X	X	X
TZW-B-1	near mudline	H+L	X	X	X	X	X	X	X	X
	near surface	H+L	X	X	X	X	X	X	X	X
TZW-B-2	near mudline	H+L	X	X	X	X	X	X	X	X
	near surface	H+L	X	X	X	X	X	X	X	X
TZW-B-3	near mudline	H+L	X	X	X	X	X	X	X	X
	near surface	H+L	X	X	X	X	X	X	X	X
TZW-B-4	near mudline	H+L	X	X	X	X	X	X	X	X
	near surface	H+L	X	X	X	X	X	X	X	X
Upstream	near mudline	H+L	X	X	X	X	X	X	X	X
	near surface	H+L	X	X	X	X	X	X	X	X
Notes: NA = Not applicable. H = High Tide. L = Low Tide. Ft bml = feet below mudline.										
*A subset of river water samples will be selected for testing as described in Section 3 of the workplan.										

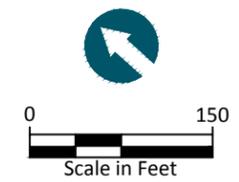
FIGURES

K:\Jobs\030162-McCall_Portland\03016201\03016201-RP-006.dwg FIG 1
Aug 26, 2010 4:28pm cdavidson



LEGEND:

- Cross Section Location and Designation
- Transect Location
- Transect Sample Location and Number
- Composite Soil Sample Location
- 72.4 Maximum Dissolved Arsenic Concentration in parts per billion during 2000 to 2004
- ND Not Detected
- NA Not Analyzed
- Monitoring Well
- Shoreline Monitoring Well
- Decommissioned Monitoring Well
- GeoProbe Boring
- Surface Water/Sediment Sample
- Piezometer
- Vegetation
- Building
- Tank



SOURCE: IT Corporation and TRT Engineering, Inc.

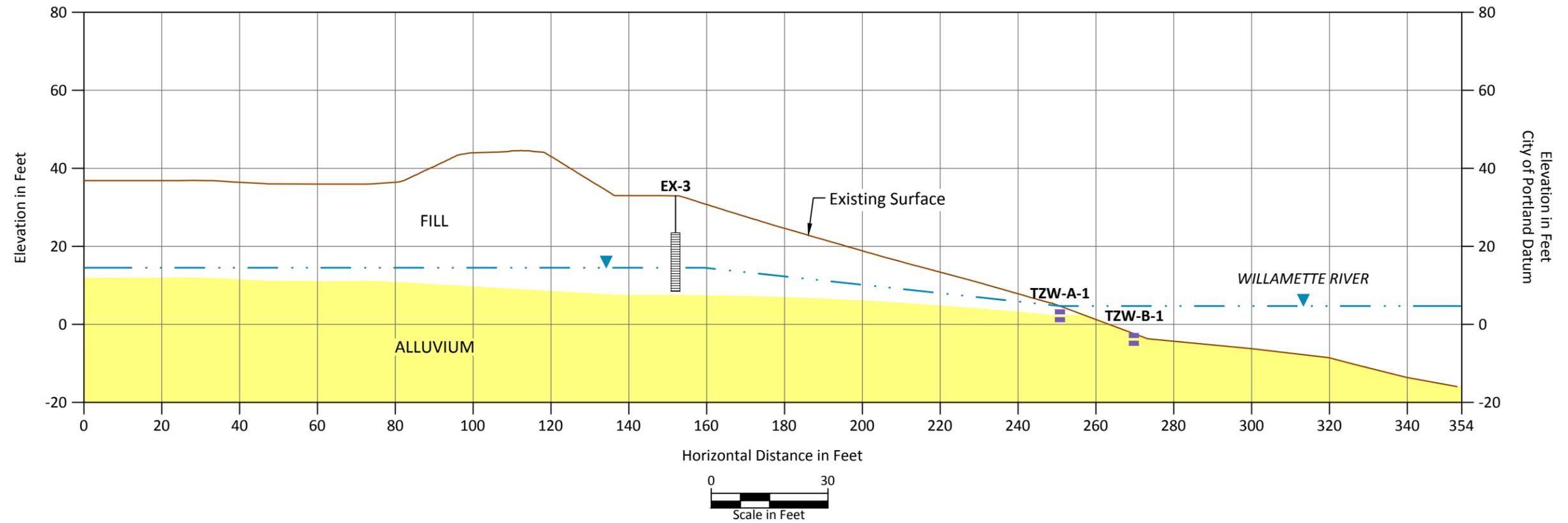
HORIZONTAL DATUM
Coordinates are on a local plane and are assumed.

ELEVATION DATUM
Elevations are based on City of Portland Benchmark #2528.
Elevation = 34.64 Feet

Figure 1
Cross Section and Sample Location Map
McCall Oil and Chemical Corporation
Portland, Oregon

K:\Jobs\030162-McCall_Portland\03016201-RP-005.dwg FIG 2 A-A'

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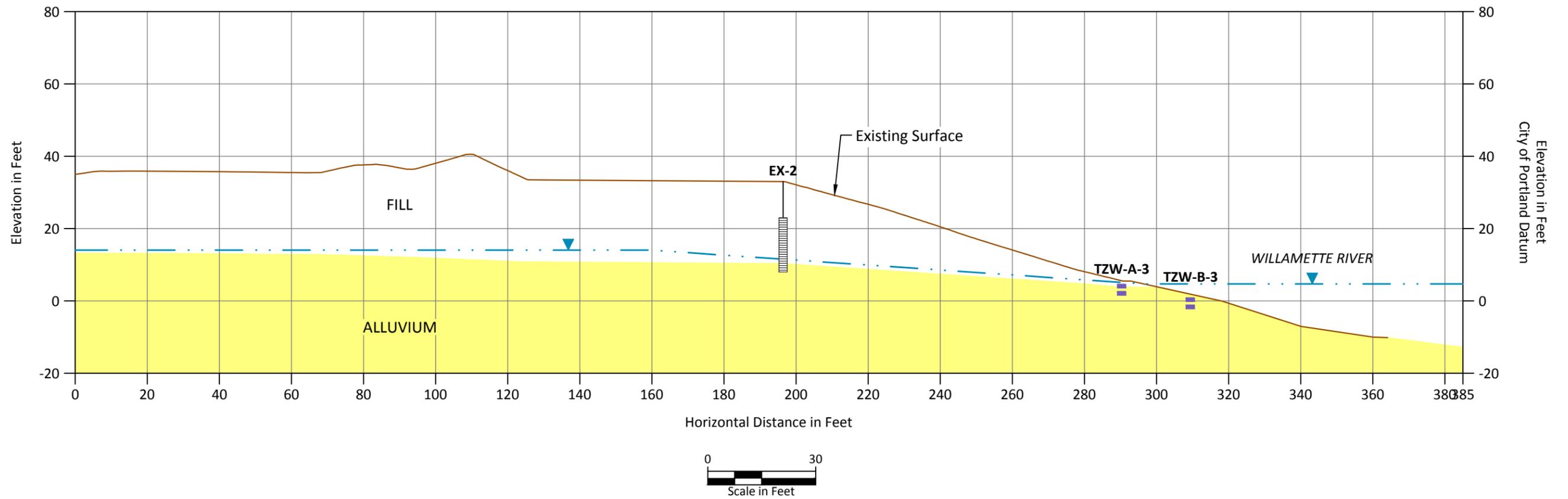


LEGEND:

- Existing Surface
- Water Level
- EX-3 Monitoring Well ID
- ┆ Boring Location
- ┆ Screen
- TZW-A-1 Proposed TZW Sample ID
- Proposed TZW Sample Interval

K:\Jobs\030162-McCall_Portland\03016201-RP-005.dwg FIG 3 B-B'

Aug 26, 2010 4:27pm cdavidson



LEGEND:

— · · — Water Level

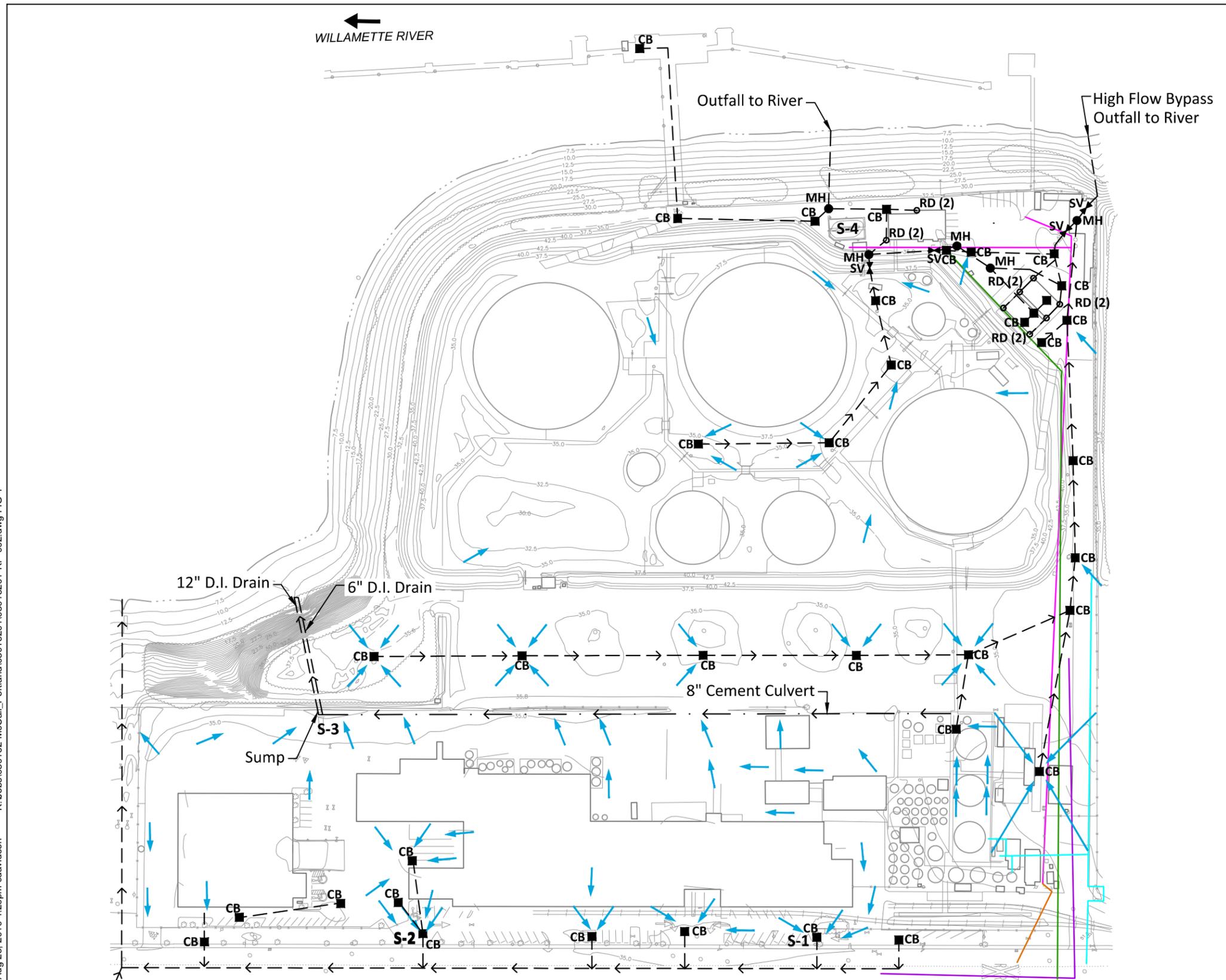
EX-2 Monitoring Well ID

TZW-A-3 Proposed TZW Sample ID

⊞ Boring Location
⊞ Screen

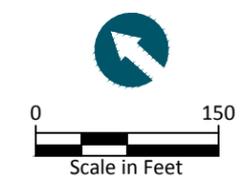
■ Proposed TZW Sample Interval

Aug 26, 2010 4:29pm odavidson K:\Jobs\030162-McCall_Portland\03016201\03016201-RP-002.dwg FIG 4



LEGEND:

- Underground PGE
- Overhead PGE
- Sewer Lines to Front Avenue City Sewer (5/13/74)
- NW Natural Gas
- Abandoned Sewer
- MH Storm Manhole
- CB Storm Catch Basin
- ORD Roof Storm Drain
- ▶SV Storm Shut-off Valve
- ← Drainage Pattern
- - - Storm Drain
- · - Cement Culvert



SOURCE: IT Corporation and TRT Engineering, Inc.

HORIZONTAL DATUM
Coordinates are on a local plane and are assumed.

ELEVATION DATUM
Elevations are based on City of Portland Benchmark #2528.
Elevation = 34.64 Feet



Figure 4
Underground Utility Map
McCall Oil and Chemical Corporation
Portland, Oregon

APPENDIX A

HEALTH AND SAFETY PLAN

HEALTH AND SAFETY PLAN

MCCALL OIL AND CHEMICAL

Prepared for

McCall Oil and Chemical Corporation
Portland, Oregon

Prepared by

Anchor QEA, LLC
6650 SW Redwood Lane, Suite 333
Portland, Oregon 97224

July 2010

CERTIFICATION PAGE

John Edwards
Project Manager
Anchor QEA, LLC

John Renda
Field Lead
Anchor QEA, LLC

Date: _____

Date: _____

The information in this Health and Safety Plan has been designed for the Scope of Work presently contemplated by Anchor QEA, LLC (Anchor QEA). Therefore, this document may not be appropriate if the work is not performed by or using the methods presently contemplated by Anchor QEA. In addition, as the work is performed, conditions different from those anticipated may be encountered and this document may have to be modified. Therefore, Anchor QEA only intends this plan to address currently anticipated activities and conditions and makes no representations or warranties as to the adequacy of the Health and Safety Plan for all conditions encountered.

HEALTH AND SAFETY PLAN ACKNOWLEDGEMENT FORM

Project Number: 030162-01 Project Name: Source Control Data Gaps Workplan

My signature below certifies that I have read and understand the policies and procedures specified in this Health and Safety Plan (HASP). For non-Anchor QEA employees, this HASP may include company-specific appendices to this plan developed by entities other than Anchor QEA.

Date	Name (print)	Signature	Company

SITE EMERGENCY PROCEDURES

Emergency Contact Information

Table A
Site Emergency Form and Emergency Phone Numbers*

Category	Information	
Possible Chemicals of Concern	VOCs, PAHs, Metals, SVOCs	
Minimum Level of Protection	Level D	
Site(s) Location Address	5480 NW Front Avenue, Portland, Oregon	
Emergency Phone Numbers		
Ambulance	911	
Fire	911	
Police	911	
Poison Control	1-800-222-1212	
Client Contact	Ted McCall	Office: (503) 221-5880
Project Manager (PM)	John Edwards	Office: (503) 670-1108 x11 Cell: (503) 816-6595
Field Lead (FL)	John Renda	Office: (503) 670-1108 x12 Cell: (503) 502-5470
Corporate Health and Safety Manager (CHSM)	David Templeton	Office: (206) 287-9130 Cell: (206) 910-4279
National Response Center	1-800-424-8802	
State Emergency Response System	1-800-452-0311	
EPA Environmental Response Team	1-201-321-6600	

* In the event of any emergency contact the PM and FL.

Table B
Hospital Information

Category	Information
Hospital Name	Legacy Good Samaritan Hospital
Address	1015 NW 22 nd Ave
City, State	Portland, OR
Phone	503-412-7711
Emergency Phone	911

Hospital Route Map and Driving Directions

Starting From: (Point S on map).

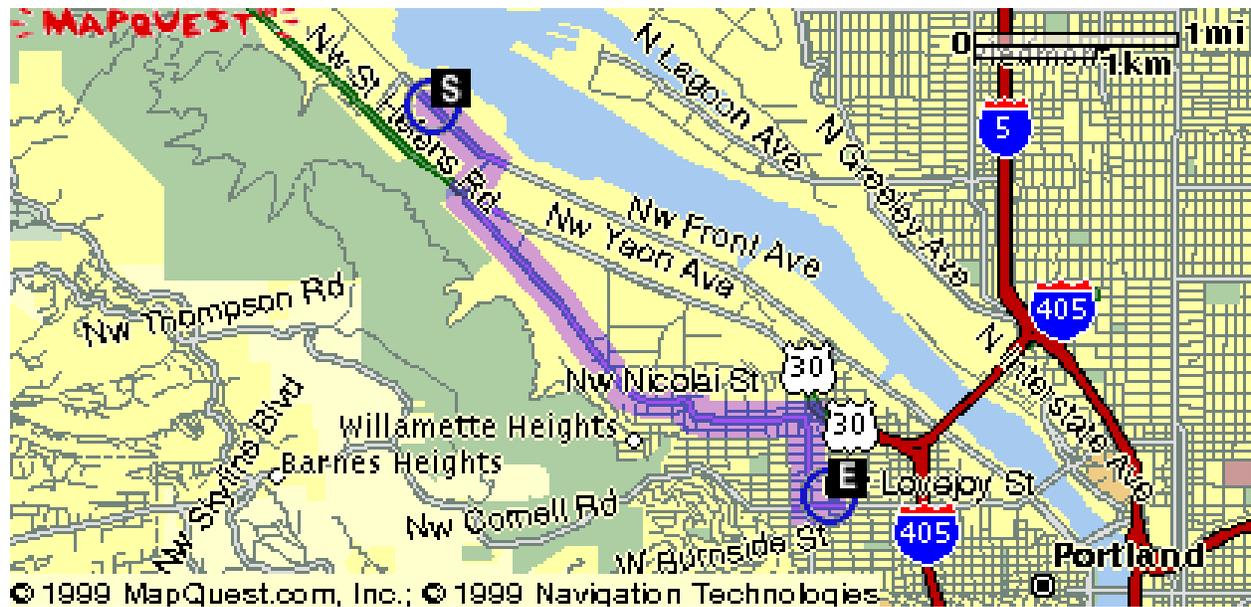
Arriving At: (Point E on map).

Distance: 3.6 miles **Approximate Travel Time:** 9 minutes

Driving Directions:

- Head SE on NW FRONT AVE towards NW KITTRIDGE AVE.
- Turn RIGHT on NW KITTRIDGE AVE.
- NW KITTRIDGE AVE becomes NW ST HELENS RD.
- NW ST HELENS RD becomes NW NICOLAI ST.
- Turn SLIGHT RIGHT onto NW WARD WAY.
- NW WARD WAY becomes NW VAUGHN ST.
- Turn RIGHT onto NW 23RD AVE.
- Turn LEFT onto NW LOVEJOY ST.
- Turn LEFT onto NW 22ND AVE.

Figure A
Hospital Route Map



Key Safety Personnel

The following people share responsibility for health and safety at the site. See Section 4 of this HASP for a description of the role and responsibility of each.

Client Contact: Ted McCall	Office: (503) 221-5880
Project Manager (PM): John Edwards	Office: (503) 670-1108 x11 Cell: (503) 816-6595
Field Lead (FL): John Renda	Office: (503) 670-1108 x12 Cell: (503) 502-5470
Corporate Health and Safety Manager (CHSM): David Templeton	Office: (206) 287-9130 Cell: (206) 910-4279

Emergency Response Procedures

In the event of an emergency, immediate action must be taken by the first person to recognize the event. Use the following steps as a guideline:

- Survey the situation to ensure that it is safe for you and the victim. Do not endanger your own life. Do not enter an area to rescue someone who has been overcome unless properly equipped and trained. Ensure that all protocols are followed. If applicable, review Material Safety Data Sheets (MSDS) to evaluate response actions for chemical exposures.
- Call the appropriate emergency number (911; if available) or direct someone else to do this immediately (see Table A). Explain the physical injury, chemical exposure, fire, or release and location of the incident.
- Have someone retrieve the nearest first aid kit and Automatic External Defibrillator (AED), if available. Note: Only use an AED if you have been properly trained and are currently certified to do so.
- Decontaminate the victim without delaying life-saving procedures (see Section 8).
- Administer first aid and cardiopulmonary resuscitation (CPR), if properly trained, until emergency responders arrive.
- Notify the Project Manager (PM) and the Field Lead (FL).
- Complete the appropriate incident investigation reports.

First Aid and CPR Guidelines

Personnel qualified and current in basic first aid and/or CPR procedures may perform those procedures as necessary. Personnel qualified and current in basic first aid and/or CPR are protected under Good Samaritan policies as long as they only perform the basic tasks that they were taught. Do not perform first aid and/or CPR tasks if you have not been trained in first aid and/or CPR.

Injury Management/Incident Notification

Observe the following injury management/incident notification procedures and practices:

Injury Management

- Once a personal injury incident is discovered, the first action will be to ensure that the injured party receives appropriate medical attention.
- If it is safe to do so, the nearest workers will immediately assist a person who shows signs of medical distress or who is involved in an accident.
- Render first aid and call 911 or the appropriate emergency number as soon as possible.
- Escort the injured person to the occupational clinic or hospital or arrange for an ambulance.
- Proceed immediately to Notification Requirements, below.

Notification Requirements

- Directly after caring for an injured person, the work crew supervisor will be summoned. The work crew supervisor will immediately make contact with the PM or other designated individual to alert them of the medical emergency. The work crew supervisor will advise them of the following:
 - Location of the victim at the work site
 - Nature of the emergency
 - Whether the victim is conscious
 - Specific conditions contributing to the injury, if known

- Contact the PM and FL immediately.
- The PM will contact upper line management, including the Corporate Health and Safety Manager (CHSM).
- The CSHM will facilitate the incident investigation.

All client requirements will also be adhered to pertinent to personal injury incident reporting.

Incident Other Than Personal Injury

All incidents including, but not limited to, fire, explosion, property damage, or environmental release will be responded to in accordance with the site-specific Health and Safety Plan. In general, this includes securing the site appropriate to the incident, turning control over to the emergency responders, or securing the site and summoning appropriate remedial personnel or equipment. Anchor QEA will immediately notify the client of any major incident, fire, equipment or property damage, or environmental incident with a preliminary report. A full report will be provided within 72 hours.

Near-Miss Reporting

All near-miss incidents (those that could have reasonably lead to an injury, environmental release, or other incident) must also be reported to the FL and/or PM immediately so they can take action to ensure that such conditions that lead to the near-miss incident can be readily corrected in order to prevent future occurrences.

Spills and Releases of Hazardous Materials

When required, notify the National Response Center and local state agencies. The following information should be provided to the National Response Center:

- Name and telephone number
- Name and address of facility
- Time and type of incident
- Name and quantity of materials involved, if known
- Extent of injuries
- Possible hazards to human health or the environment outside of the facility

The emergency telephone number for the National Response Center is 1-800-424-8802. If hazardous waste has been released or produced through control of the incident, ensure that:

- Waste is collected and contained
- Containers of waste are removed or isolated from the immediate site of the emergency
- Treatment or storage of the recovered waste, contaminated soil or surface water, or any other material that results from the incident or its control is provided
- No waste that is incompatible with released material is treated or stored in the facility until cleanup procedures are completed

Ensure that all emergency equipment used is decontaminated, recharged, and fit for its intended use before operations are resumed.

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Appendix A	Health and Safety Logs and Forms
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LIST OF ACRONYMS AND ABBREVIATIONS

° C	degrees Celsius
° F	degrees Fahrenheit
ACGIH	American Conference of Governmental Industrial Hygienists
AED	Automated External Defibrillator
Anchor QEA	Anchor QEA, LLC
ANSI	American National Standards Institute
APR	Air-Purifying Respirator
CDC	Centers for Disease Control
CFR	Code of Federal Regulations
CHSM	Corporate Health and Safety Manager
COC	chemical of concern
CPR	Cardiopulmonary resuscitation
CRZ	Contamination Reduction Zone
dB	A-weighted decibel
dB	decibel
DOT	U.S. Department of Transportation
DPT	Direct Push Technology
EPA	U.S. Environmental Protection Agency
eV	electron volts
EZ	Exclusion Zone/Hot Zone
FID	Flame Ionization Detector
FL	Field Lead
GFCI	Ground Fault Circuit Interrupter
H:V	horizontal to vertical
HASP	Health and Safety Plan
HAZMAT	Hazardous Materials
HAZWOPER	Hazardous Waste Operations and Emergency Response
HEPA	High Efficiency Particulate Air
HMIS	Hazardous Material Information System
IDLH	Immediately Dangerous to Life or Health

IP	Ionization Potential
JSA	Job Safety Analysis
kPa	kilopascal
kV	kilovolts
LEL	Lower Explosive Limit
LO/TO	Lockout/Tagout
mg/m ³	Milligrams per cubic meter
MHR	Maximum Heart Rate
MSDS	Material Safety Data Sheets
MUTCD	Manual of Uniform Traffic Control Devices
NEC	National Electrical Code
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NPL	National Priority List
NRR	Noise Reduction Rating
O ₂	Oxygen
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Act or Administration
OV	Organic Vapor
OVM	Organic Vapor Monitor
PAHs	Polycyclic Aromatic Hydrocarbon
P.E.	Professional Engineer
PEL	Permissible Exposure Limit
PFD	personal flotation device
PID	Photoionization Detector
PM	Project Manager
PPE	Personal Protective Equipment
ppm	parts per million
PRCS	Permit-Required Confined Spaces
PVC	Polyvinyl Chloride
QLFT	Qualitative Fit Test
REL	Recommended Exposure Limits
RCRA	Resource Conservation and Recovery Act

STEL	Short Term Exposure Limit
SZ	Support Zone/Clean Zone
TLV	Threshold Limit Values
TSD	Treatment, Storage, and Disposal Facility
tsf	ton per square foot
TWA	Time Weighted Average
USCG	U.S. Coast Guard
VOC	Volatile Organic Compound
WBGT	Wet Bulb Globe Temperature

1 INTRODUCTION

This Health and Safety Plan (HASP) has been prepared on behalf of McCall Oil and Chemical Corporation (MOCC) and presents health and safety requirements and procedures that will be followed by Anchor QEA, LLC (Anchor QEA) personnel and its subcontractors during work activities at The McCall Portland, Front Avenue Site (the site). This HASP has been developed in accordance with Title 29 of the Code of Federal Regulations (CFR), Part 1910.120 (b), and will be used in conjunction with Anchor QEA's Corporate Health and Safety Program. See Section 1.1 for HASP modification procedures.

The provisions of this HASP are mandatory for all Anchor QEA personnel assigned to the project. Anchor QEA subcontractors are also expected to follow the provisions of this HASP unless they have their own HASP that covers their specific activities related to this project. Any subcontractor HASPs must include the requirements set forth in this HASP, at a minimum. All visitors to the work site must also abide by the requirements of this HASP and will attend a pre-work briefing where the contents of this HASP will be presented and discussed.

Personnel assigned to work at the project site will be required to read this plan and must sign the Health and Safety Plan Acknowledgement Form to confirm that they understand and agree to abide by the provisions of the HASP.

Subcontractors are ultimately responsible for the health and safety of their employees. Subcontractors may mandate health and safety protection measures for their employees beyond the minimum requirements specified in this HASP.

The objectives of this HASP are to identify potential physical, chemical, and biological hazards associated with field activities; establish safe working conditions and protective measures to control those hazards; define emergency procedures; and describe the responsibilities, training requirements, and medical monitoring requirements for site personnel.

This HASP prescribes the procedures that must be followed during specific site activities. Significant operational changes that could affect the health and safety of personnel, the community, or the environment will not be made without the prior approval of the Project Manager (PM) and the Corporate Health and Safety Manager (CHSM).

Issuance of this approved plan documents that the workplace has been evaluated for hazards. A hazard assessment has been performed and the adequacy of the personal protective equipment (PPE) selected was evaluated as required by 29 CFR 1910.132(d) - Personal Protective Equipment, General Requirements (general industry), 1910.134 – Respiratory Protection, 1926.28 – Personal Protective Equipment (construction industry), and 1926.55 – Gases, vapors, fumes, dusts and mist, and is duly noted by the signature(s) and date appearing on the certification page of this document.

1.1 Health and Safety Plan Modifications

This HASP will be modified by amendment, if necessary, to address changing field conditions or additional work tasks not already described in this document. Modifications will be proposed by the Field Lead (FL) using the “Modification to Health and Safety Plan” form included in Appendix A. Modifications will be reviewed by the CHSM or authorized representative and approved by the PM.

2 SITE DESCRIPTION/BACKGROUND INFORMATION

2.1 Site Description

The site is located in the industrialized area of northwest Portland along NW Front Avenue. It occupies approximately 36 acres on the southwest bank of the Willamette River.

The property is currently occupied by two separate facilities: McCall Oil and Chemical Corporation (MOCC), which operates a marine terminal and asphalt facility, and Brenntag Pacific (Brenntag), which operates a chemical distribution facility. The site and surrounding properties are zoned for heavy industrial use. Surrounding industries include: petroleum bulk distribution terminals, chemical plants, sand and gravel operations, a steel fabrication facility, shipyards, and rail yards.

3 SCOPE OF WORK

3.1 Project Scope of Work

This plan addresses health and safety issues involved with the following field tasks:

- Sampling of monitoring wells
- Sampling of erodible bank soils
- Sampling of Transition Zone Water (TZW)

4 AUTHORITY AND RESPONSIBILITIES OF KEY PERSONNEL

This section describes the authority and responsibilities of key Anchor QEA project personnel. The names and contact information for the following key safety personnel are listed in the Emergency Site Procedures section at the beginning of this HASP. Should key site personnel change during the course of the project, a new list will be established and posted immediately at the site. The emergency phone number for the site is **911**, and should be used for all medical, fire, and police emergencies.

4.1 Project Manager

The PM provides overall direction for the project. The PM is responsible for ensuring that the project meets the client's objectives in a safe and timely manner. The PM is responsible for providing qualified staff for the project and adequate resources and budget for the health and safety staff to carry out their responsibilities during the field work. The PM will be in regular contact with the FL and CHSM to ensure that appropriate health and safety procedures are implemented into each project task.

The PM has authority to direct response operations; the PM assumes total control over project activities but may assign responsibility for aspects of the project to others. In addition, the PM:

- Oversees the preparation and organization of background review of the project, the work plan, and the field team.
- Ensures that the team obtains permission for site access and coordinates activities with appropriate officials.
- Briefs the FL and field personnel on specific assignments.
- Together with the FL, sees that health and safety requirements are met.
- Consults with the CHSM regarding unsafe conditions, incidents, or changes in site conditions or the Scope of Work.

4.2 Field Lead

The FL reports to the PM, has authority to direct response operations, and assumes control over on-site activities. The FL will direct field activities, coordinate the technical and health

and safety components of the field program, and is responsible in general for enforcing this site-specific HASP and Corporate HASP requirements. The FL will be the primary point of contact for all field personnel and visitors and has direct responsibility for implementation and administration of this HASP. The FL and any other member of the field crew have the authority to stop or suspend work in the event of an emergency, if conditions arise that pose an unacceptable health and safety risk to the field crew or environment, or if conditions arise that warrant revision or amendment of this HASP. The following include, but are not necessarily limited to, the functions of the FL related to this HASP:

- Conduct and document daily safety meetings, or designate an alternate FL in his or her absence.
- Execute the work plan and schedule.
- Conduct periodic field health and safety inspections to ensure compliance with this HASP.
- Oversee implementation of safety procedures.
- Implement worker protection levels.
- Enforce site control measures to ensure that only authorized personnel are allowed on site.
- Notify, when necessary, local public emergency officials (all personnel on site may conduct this task as needed).
- Follow-up on incident reports to the PM.
- Periodically inspect protective clothing and equipment for adequacy and safety compliance.
- Ensure that protective clothing and equipment are properly stored and maintained.
- Perform or oversee air monitoring in accordance with this HASP.
- Maintain and oversee operation of monitoring equipment and interpretation of data from the monitoring equipment.
- Monitor workers for signs of stress, including heat stress, cold exposure, and fatigue.
- Require participants to use the “buddy” system.
- Provide (via implementation of this HASP) emergency procedures, evacuation routes, and telephone numbers of the local hospital, poison control center, fire department, and police department.
- Communicate incidents promptly to the PM.
- Maintain communication with the CHSM on site activities.

- If applicable, ensure that decontamination and disposal procedures are followed.
- Maintain the availability of required safety equipment.
- Advise appropriate health services and medical personnel of potential exposures.
- Notify emergency response personnel in the event of an emergency and coordinate emergency medical care.

The FL will record health-and-safety-related details of the project in the field logbook. At a minimum, each day's entries must include the following information:

- Project name or location
- Names of all on-site personnel
- Level of PPE worn and any other specifics regarding PPE
- Weather conditions
- Type of field work being performed

The FL will have completed the required Occupational Safety and Health Administration (OSHA) 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training and annual updates, the 8-hour Supervisor training, medical monitoring clearance, and current first aid and cardiopulmonary resuscitation (CPR) training. Other certifications or training may be stipulated based on client or site requirements.

4.3 Corporate Health and Safety Manager

Anchor QEA's CHSM will be responsible for managing on-site health and safety activities and will provide support to the PM and FL on health and safety issues. The specific duties of the CHSM are to:

- Provide technical input into the design and implementation of this HASP.
- Advise on the potential for occupational exposure to project hazards, along with appropriate methods and/or controls to eliminate site hazards.
- Ensure that a hazard assessment has been performed and that the adequacy of the PPE selected was evaluated as required by 29 CFR 1910.132(d), 1910.134, 1926.25, and 1926.55, and is duly noted by the signatures and date appearing on the Certification Page of this document.

- Consult with the FL on matters relating to suspending site activities in the event of an emergency.
- Verify that all on-site Anchor QEA personnel and subcontractors have read and signed the HASP Acknowledgement Form.
- Verify that corrective actions resulting from deficiencies identified by audit and observations are implemented and effective.

The CHSM will have completed the required OSHA 40-hour HAZWOPER training and annual updates, the 8-hour Supervisor training, and have medical monitoring clearance. In addition, the CHSM will have current training in first aid and CPR.

4.4 Project Field Team

All project field team members will attend a project-specific meeting conducted by the FL concerning safety issues and project work task review before beginning work. All field crew, including subcontractors, must be familiar with and comply with this HASP. The field crew has the responsibility to immediately report any potentially unsafe or hazardous conditions to the FL, and all members of the field crew have the authority to stop or suspend work if conditions arise that pose an unacceptable health and safety risk to the field crew or environment, or if conditions arise that warrant revision or amendment of this HASP. The field team reports to the FL for on-site activities and is responsible for:

- Reviewing and maintaining a working knowledge of this HASP
- Safe completion of on-site tasks required to fulfill the work plan
- Compliance with the HASP
- Attendance and participation in daily safety meetings
- Notification to the FL of existing or potential safety conditions at the site
- Reporting all incidents to the FL
- Demonstrating safety and health conscious conduct

5 PROJECT-SPECIFIC REQUIREMENTS

This section provides activity-specific levels of protection and air monitoring requirements to be used on this site based on the Scope of Work and the chemicals of concern (COCs).

5.1 Activity-Specific Level of Protection Requirements

Refer to Section 10 of this plan for general requirements for PPE. Level D is the minimum acceptable level for most sites. An upgrade to Modified Level D occurs when there is a possibility that contaminated media can come in contact with the skin or work uniform. An upgrade to Level C occurs when there is a potential for exposure to airborne COCs; i.e., if the results of air monitoring reveal that action levels have been exceeded. Hearing protection must be worn when there are high noise levels. Workers must maintain proficiency in the use and care of PPE that is to be worn.

Table 5-1, Project Job Tasks and Required PPE, describes the specific means of protection needed for each identified work activity.

5.2 Project Air Monitoring Requirements

Refer to Section 11 of this plan for general requirements for air monitoring at the project site, including information on air monitoring equipment. Upgrade from Level D and/or Modified Level D to Level C when the results of air monitoring reveals that action levels have been exceeded. No air monitoring is anticipated for this project.

**Table 5-1
Project Job Tasks and Required PPE**

Job Tasks	PPE Requirements
<ul style="list-style-type: none"> • Loading and unloading sample coolers, boat equipment, general non-sampling activities on boat • Operation of sampling vessel and equipment from inside boat house • Operation of sampling equipment but with no anticipated direct contact with sediments or decontamination chemicals 	<input checked="" type="checkbox"/> Standard work uniform/coveralls
	<input checked="" type="checkbox"/> Work boots with safety toe
	<input checked="" type="checkbox"/> Traffic Safety Vest
	<input type="checkbox"/> Chemical-resistant clothing <u>check appropriate garments:</u> <input type="checkbox"/> One-piece coverall <input type="checkbox"/> Hooded one- or two-piece chemical splash suit <input type="checkbox"/> Disposable chemical coveralls <input type="checkbox"/> Chemical-resistant hood and apron <input type="checkbox"/> Bib-style overalls and jacket with hood <input type="checkbox"/> Fabric Type: Tyvek NOTE: Thick rain pants and coveralls may be substituted for coated Tyvek if sediments are not obviously contaminated with polycyclic aromatic hydrocarbons (PAHs) or related petroleum products. Rain slickers cannot be effectively decontaminated of tar/petroleum contamination.
	<input type="checkbox"/> Disposable inner gloves (surgical)
	<input checked="" type="checkbox"/> Disposable chemical-resistant outer gloves Material Type: Nitrile
	<input type="checkbox"/> Chemical-resistant boots with safety toe and steel shank or disposable boot covers for safety toe/work boots Material Type: Rubber or leather
	<input type="checkbox"/> Sleeves to be duct-taped over gloves and pants to be duct-taped over boots
	<input type="checkbox"/> Splash-proof safety goggles
	<input checked="" type="checkbox"/> Safety glasses
	<input checked="" type="checkbox"/> Hard hat
	<input type="checkbox"/> Hard hat with face shield
	<input checked="" type="checkbox"/> Hearing protectors (REQUIRED if site noise levels are greater than 85 decibels [dB] based on an 8-hour time-weighted average [TWA]).
<input type="checkbox"/> Two-way radio communication (intrinsically safe, if explosive atmosphere is a potential)	

Job Tasks	PPE Requirements
	<input type="checkbox"/> Long cotton underwear <input checked="" type="checkbox"/> U.S. Coast Guard (USCG)-approved personal flotation device (PFD) <input type="checkbox"/> USCG-approved float coat and bib-overalls (e.g., full two-piece “Mustang” survival suit or similar) or one-piece survival suit if water temperatures are below 50° F <input type="checkbox"/> Half-face Air-Purifying Respirator (APR) (OSHA/NIOSH-approved) <input type="checkbox"/> Full-face APR (OSHA/NIOSH-approved) <input type="checkbox"/> Type of Cartridges to be Used: <input type="checkbox"/> OV or <input type="checkbox"/> OV/HEPA (if samples are dry)
<ul style="list-style-type: none"> • Soil, Groundwater, and TZW sample collection 	<input checked="" type="checkbox"/> Standard work uniform/coveralls <input checked="" type="checkbox"/> Work boots with safety toe <input checked="" type="checkbox"/> Traffic Safety Vest <input type="checkbox"/> Chemical-resistant clothing <u>check appropriate garments:</u> <input type="checkbox"/> One-piece coverall <input type="checkbox"/> Hooded one- or two-piece chemical splash suit <input type="checkbox"/> Disposable chemical coveralls <input type="checkbox"/> Chemical-resistant hood and apron <input type="checkbox"/> Bib-style overalls and jacket with hood <input type="checkbox"/> Fabric Type: Tyvek NOTE: Thick rain pants and coveralls may be substituted for coated Tyvek if sediments are not obviously contaminated with PAHs or related petroleum products. Rain slickers cannot be effectively decontaminated of tar/petroleum contamination. <input checked="" type="checkbox"/> Disposable inner gloves (surgical) <input checked="" type="checkbox"/> Disposable chemical-resistant outer gloves Material Type: Nitrile <input type="checkbox"/> Chemical-resistant boots with safety toe and steel shank or disposable boot covers for safety toe/work boots Material Type: Rubber or leather <input type="checkbox"/> Sleeves to be duct-taped over gloves and pants to be duct-taped over boots

Job Tasks	PPE Requirements
	<input type="checkbox"/> Splash-proof safety goggles
	<input checked="" type="checkbox"/> Safety glasses
	<input checked="" type="checkbox"/> Hard hat
	<input type="checkbox"/> Hard hat with face shield
	<input checked="" type="checkbox"/> Hearing protectors (REQUIRED if site noise levels are greater than 85 dB based on an 8-hour TWA).
	<input type="checkbox"/> Two-way radio communication (intrinsically safe, if explosive atmosphere is a potential)
	<input type="checkbox"/> Long cotton underwear
	<input checked="" type="checkbox"/> USCG-approved PFD
	<input type="checkbox"/> USCG-approved float coat and bib-overalls (e.g., full two-piece "Mustang" survival suit or similar) or one-piece survival suit if water temperatures are below 50° F
	<input type="checkbox"/> Half-face APR (OSHA/NIOSH-approved)
	<input type="checkbox"/> Full-face APR (OSHA/NIOSH-approved)
	<input type="checkbox"/> Type of Cartridges to be Used: <input type="checkbox"/> OV or <input type="checkbox"/> OV/HEPA (if samples are dry)

6 RISK ANALYSIS AND CONTROL

The following sections discuss the potential worker health and safety hazards associated with the field tasks described in the Scope of Work. Controls of these hazards are addressed through the mechanical and physical control measures, use of PPE, monitoring, training, decontamination, emergency response, and safety procedures.

Significant changes in the Scope of Work covered by this HASP must be communicated to the PM and CHSM, and an amendment to this HASP must be created as needed (see Section 1.1). Any task conducted beyond those identified in the Scope of Work and this HASP must be evaluated prior to conducting the work.

6.1 Exposure Routes

Possible routes of exposure to the chemicals potentially encountered on this project include inhalation, dermal contact, and ingestion of dust, mist, gas, vapor, or liquid. Exposure will be minimized by using safe work practices and by wearing the appropriate PPE. A further discussion of PPE requirements is presented in Section 10.

6.1.1 Inhalation

Inhalation of particulates, dust, mist, gas, or vapor during field activities is possible. Whenever possible, work activities will be oriented so that personnel are upwind of the sampling location. An organic vapor monitor (OVM) may be used to monitor ambient air and the breathing zone within the work area for organic compounds.

6.1.2 Dermal Contact

Dermal contact with potentially contaminated soil, sediment, or groundwater during field activities is possible. Direct contact will be minimized through the use of appropriate PPE and decontamination procedures.

6.1.3 Ingestion

Direct ingestion of contaminants can occur by inhaling airborne dust, mist, or vapors, or by swallowing contaminants trapped in the upper respiratory tract. Indirect ingestion can occur

by introducing the contaminants into the mouth by way of food, tobacco, fingers, or other carriers. Although ingestion of contaminants can occur, proper hygiene, decontamination, and contamination reduction procedures should reduce the probability of this route of exposure.

7 SITE CONTROL AND COMMUNICATIONS

The primary purposes for site controls are to establish the hazardous area perimeter, to reduce migration of contaminants into clean areas, and to prevent unauthorized access or exposure to hazardous materials by site personnel and the public. Site control is especially important in emergency situations.

7.1 General Site Control Safety Procedures

The following are standard safe work practices that apply to all Anchor QEA site personnel and subcontractors and shall be discussed in the safety briefing prior to initiating work on the site:

- Eating, drinking, chewing gum or tobacco, and smoking are prohibited on site except in designated areas.
- Hands and faces must be washed upon leaving the work area and before eating, drinking, chewing gum or tobacco, and smoking.
- A buddy system will be used. Radio or hand signals will be established to maintain communication.
- During site operations, each worker will consider him/herself as a safety backup to his/her partner.
- Visual contact will be maintained between buddies on-site when performing hazardous duties.
- No personnel will be admitted to the site without the proper safety equipment, training, and medical surveillance certification.
- All personnel must comply with established safety procedures. Any staff member who does not comply with safety policy, as established in this HASP, will be subject to corrective action, potentially including, but not limited to, reprimanded and immediate dismissal.
- Proper decontamination procedures must be followed before leaving a contaminated work area.

7.2 Work Area Access Control

If work is performed in public areas, the following precautions shall be taken to protect both the workers and the public. Access control to the work area will be accomplished by the use of a combination of the following devices and/or methods:

- Fences and/or barricades
- Traffic control devices and/or use of flaggers
- Caution tape
- Other methods to keep the site secure and provide a visual barrier to help keep unauthorized personnel from entering the site and active work areas

7.3 Hazardous Waste Site Work Control Procedures

To prevent contamination from migrating from personnel and equipment, work areas will be clearly specified as an Exclusion Zone/Hot Zone (EZ), Contaminant Reduction Zone (CRZ), or Support Zone/Clean Zone (SZ) prior to beginning operations. Each work area will be clearly identified using signs or physical barriers. At the end of each workday, the site should be secured and/or guarded to prevent unauthorized entry.

Site work zones will include:

- **Exclusion Zone/Hot Zone (EZ).** The EZ will be the “hot zone” or contaminated area inside the site perimeter (or sample collection area of boat). The EZ is the defined area where potential respiratory and/or health hazards exist. All personnel entering the EZ must use the required PPE, as set forth in this HASP, and meet the appropriate training and medical clearance. Entry to and exit from this zone will be made through a designated point. Appropriate warning signs to identify the EZ should be posted (e.g., DANGER, AUTHORIZED PERSONNEL ONLY, PROTECTIVE EQUIPMENT REQUIRED BEYOND THIS POINT). Personnel and equipment decontamination must be performed upon exiting the EZ.
- **Contaminant Reduction Zone (CRZ).** The CRZ, also known as the “warm zone,” is a transitional zone between the EZ and the SZ (also known as the “cold zone” or “clean zone”). The CRZ provides a location for removal and decontamination of PPE and tools leaving the EZ. A separate decontamination area will be established for heavy

equipment. All personnel and equipment must exit via the CRZ. If, at anytime, the CRZ is compromised, a new CRZ will be established.

- **Support Zone/Clean Zone (SZ).** This uncontaminated zone will be the area outside the EZ and CRZ and within the geographic perimeters of the site (including boat and processing areas). The SZ is used for support personnel; staging materials; parking vehicles; office, laboratory, and sanitation facilities; and receiving deliveries. Personnel entering this zone may include delivery personnel, visitors, security guards, and others who will not necessarily be permitted in the EZ or CRZ.

A log of all personnel visiting, entering, or working on the site shall be maintained by the FL. No visitor will be allowed in the EZ without showing proof of training and medical certification, per 29 CFR 1910.120(e), (f). Visitors will attend a site orientation given by the FL and sign the HASP.

7.4 Site-Specific Work Zone Requirements

This section contains guidelines for maintaining safe conditions when working from a boat, in a roadway, or at an excavation site.

7.4.1 Sediment Sampling Work Zones

This subsection contains guidelines concerning health and safety aboard marine sampling vessels. The vessel captain, onshore coring operator, and the FL will delineate the boundaries of the work zones aboard the vessel and will inform the field crews of the arrangement. The purpose of the zones is to limit the migration of sample material out of the zones and to restrict access to active work areas.

Two work zones will be observed aboard the vessel. One will encompass the “moonhole” of the vessel where the samplers will be deployed and recovered. Only the coring crew may enter this zone unless assistance is required by other personnel. The second work zone will be a sample processing area on the vessel. The contractor crew will deliver sediment core tubes to this zone and open them. Anchor QEA personnel will log and process the sediment cores either on the boat or on shore.

Both the collection and processing areas on the vessel and onshore will have a SZ outside the CRZ to stage clean equipment, don PPE, take rest breaks, or perform any other site activities that do not involve potentially contaminated materials.

7.4.1.1 Vessel Decontamination Area

A station will be set up for decontaminating sample processing equipment and personnel gear such as boots or PPE. The station will have the buckets, brushes, soapy water, rinse water, or wipes necessary to perform decontamination operations. Plastic bags will be provided for expendable and disposable materials. The decontamination fluids will be stored in sealable containers and will be properly disposed of.

7.4.1.2 Access Control

Security and control of access to the sampling vessel and onshore area will be the responsibility of the captain and FL. Additional security measures may be placed into effect by the client, or as required by national security threat levels determined by the federal government. Access to the vessel and onshore areas will only be granted to necessary project personnel and authorized visitors. Any security or access control problems will be reported to the client or appropriate authorities.

7.4.1.3 Safety Equipment

In addition to PPE that will be worn by shipboard personnel, basic emergency and first aid equipment will also be provided. Equipment will include:

- U.S. Coast Guard (USCG)-approved personal flotation devices (PFDs)
- First aid kit adequate for the number of personnel
- Emergency eyewash

Anchor QEA and/or subconsultants will provide this equipment, which must be at the location(s) where field activities are being performed. Equipment will be checked daily to ensure its readiness for use.

7.5 Field Communications

Communications between all Anchor QEA employees and subcontractors at the work site can be verbal and/or non-verbal. Verbal communication can be affected by the on-site background noise and various PPE. See Table 7-1 for a list of the types of communication methods and equipment to use, depending on site conditions. Communication equipment must be checked daily to ensure proper operation. All project personnel must be initially briefed on the communication methods prior to starting work; communication methods should be reviewed in daily safety meetings.

Table 7-1
Field Communication Methods

Type of Communication	Communication Device	Signal
Emergency notification	On-site Telephone or Cellular Telephone	Initiate phone call using applicable emergency numbers
Emergency notification among site personnel	Two-way Radio	Initiate radio communication with Code Red message
Hailing site personnel for non-emergency	Compressed Air Horn	One long blast, one short blast
Hailing site personnel for emergency evacuation	Compressed Air Horn	Three long, continuous blasts
Hailing site personnel for distress, need help	Visual	Arms waved in circle overhead
Hailing site personnel for emergency evacuation	Visual	Arms waved in criss-cross over head
Contaminated air/strong odor	Visual	Hands clutching throat
Break, lunch, end of day	Visual	Two hands together, break apart

8 DECONTAMINATION PROCEDURES AND PRACTICES

8.1.1 *Minimization of Contamination*

The following measures will be observed to prevent or minimize exposure to potentially contaminated materials:

Personnel

- Do not walk through spilled materials
- Do not handle, touch, or smell sample media directly
- Make sure PPE has no cuts or tears prior to use
- Protect and cover any skin injuries
- Stay upwind of airborne dusts and vapors
- Do not eat, drink, chew tobacco, or smoke in the work zones

Sampling Equipment and Vehicles/Vessels

- Use care to avoid getting sampled media on the outside of sample containers
- If necessary, bag sample containers before filling with sampled media
- Place clean equipment on a plastic sheet to avoid direct contact with contaminated media
- Keep contaminated equipment and tools separate from clean equipment and tools
- Fill sample containers over a plastic tub to contain spillage
- Clean up spilled material immediately to avoid tracking around the vehicle/vessel

8.1.2 *Decontamination Equipment*

All vehicles, vessels, and equipment that have entered potentially contaminated areas will be visually inspected and, if necessary, decontaminated prior to leaving the area. If the level of vehicle contamination is low, decontamination may be limited to rinsing tires and wheel wells with an appropriate detergent and water. If the vehicle is significantly contaminated, steam cleaning or pressure washing may be required. Tools will be cleaned in the same manner. Rinsate from all decontamination activities will be collected for proper disposal. Decontamination of equipment and tools will take place within the CRZ.

The following supplies will be available to perform decontamination activities:

- Wash and rinse buckets
- Tap water and phosphate-free detergent
- Scrub brushes
- Distilled/deionized water
- Deck pump with pressurized freshwater hose (aboard the vessel)
- Pressure washer/steam cleaner, if appropriate
- Paper towels and plastic garbage bags

8.1.3 Personnel Decontamination

The FL will ensure that all site personnel are familiar with personnel decontamination procedures as listed below. All personnel wearing PPE in a work area (EZ) must undergo decontamination prior to entering the SZ. Personnel will perform the following decontamination procedures:

- Wash and rinse outer gloves and boots in portable buckets to remove gross contamination.
- If suit is heavily soiled, rinse it off.
- Remove outer gloves; inspect and discard if damaged. Leave inner gloves on. Personnel will remove their outer garment and gloves, dispose of them, and properly label container or drum. Personnel will then decontaminate their hard hats and boots with an aqueous solution of detergent or other appropriate cleaning solution. These items then will be hand-carried to the next station. Remove inner gloves.
- Thoroughly wash hands and face before leaving CRZ.
- Sanitize respirators and place in a clean plastic bag.

8.1.4 Sampling and Processing Equipment Decontamination

To prevent sample cross-contamination, sampling and processing equipment in contact with soil, sediment, or water samples will undergo the following decontamination procedures when work is completed in the CRZ and prior to additional use:

1. Rinse with potable water and wash with scrub brush.
2. Wash with phosphate-free detergent (Alconox®).

3. Visually inspect the sampler and repeat the scrub and rinse step, if necessary. If scrubbing and rinsing with Alconox® is insufficient to remove visually observable tar-related contamination on equipment, the equipment will be scrubbed and rinsed using hexane (or similar type solution) until all visual signs of contamination are absent.
4. Rinse external sampling equipment with potable water three times prior to use. Rinse homogenizing equipment once with potable water and three times with distilled water prior to and between sample processing.

8.1.5 Handling of Investigation-Derived Waste

All remaining soil or sediment, fluids used for decontamination of sampling equipment, and sample collection disposable wastes (e.g., gloves, paper towels, foil, or others) will be placed into appropriate containers and staged on site for disposal.

8.1.5.1 Disposable PPE

Disposable PPE may include Tyvek suits, inner latex gloves, and respirator cartridges. Dispose of PPE according to the requirements of the client and state and federal agencies.

8.1.5.2 Non-disposable PPE

Non-disposable PPE may include respirators and boots and gloves. When decontaminating respirators, observe the following practices and procedures:

- Wipe out the respirator with a disinfecting pad prior to donning.
- Decontaminate the respirator on site at the close of each day with an approved sanitizing solution.

When decontaminating boots and gloves, observe the following practices and procedures:

- Decontaminate the boots or gloves outside with a solution of detergent and water; rinse with water prior to leaving the site.
- Protect the boots or gloves from exposure by covering with disposable covers such as plastic to minimize required decontamination activities.

8.1.6 Sanitizing of Personal Protective Equipment

Respirators, reusable protective clothing, and other personal articles must not only be decontaminated before being reused, but also sanitized. The insides of masks and clothing become soiled due to exhalation, body oils, and perspiration. Manufacturer's instructions should be used to sanitize respirator masks. If practical, reusable protective clothing should be machine-washed after a thorough decontamination; otherwise, it must be cleaned by hand.

8.1.7 Emergency Personnel Decontamination

Personnel with medical problems or injuries may also require decontamination. There is the possibility that the decontamination may aggravate or cause more serious health effects. If prompt lifesaving, first aid, and medical treatment are required, decontamination procedures will be omitted. In either case, a member of the site management team will accompany contaminated personnel to the medical facility to advise on matters involving decontamination.

8.1.8 Containment of Decontamination Fluids

As necessary, spill control measures will be used to contain contaminated runoff that may enter into clean areas. Use plastic sheeting, hay bales, or install a spill control system to prevent spills and contain contaminated water.

8.1.9 Pressure Washing

The following procedure is required when using high-pressure washing equipment for decontamination purposes:

- Wear modified Level D protection, including a face shield and safety goggles.
- Ensure that other personnel are out of the area prior to decontamination.
- Secure the area around the decontamination pad with cones, caution tape, or barricades.
- Ensure that safe work practices and precautions are taken to minimize the potential for physical injury from high-pressure water spray. Follow the manufacturer's operating instructions.

- The pressure washer wand must be equipped with a safety release handle.
- Ensure that the area is clean after equipment is decontaminated. Barricades, cones, or caution tape must be left in place and secured at all times.

9 HEALTH AND SAFETY TRAINING AND INFORMATIONAL PROGRAMS

This section describes the health and safety training and informational programs that Anchor QEA project site personnel must comply with.

9.1 Initial Project Site Orientation

Work on all Anchor QEA project sites will require participation in an initial health and safety orientation presented by the PM or FL that will consist of, at a minimum, the following topics:

- A review of the contents of this HASP, including the Scope of Work and associated site hazards and control methods and procedures.
- Provisions of this plan are mandatory for all Anchor QEA personnel assigned to the project.
- Anchor QEA subcontractors are also expected to follow the provisions of this plan unless they have their own HASP that covers their specific activities related to this project and includes the minimum requirements of this HASP.
- All visitors to the work site will also be required to abide by the requirements of this plan.
- Personnel assigned to perform work at the project site, working under the provisions of this HASP, will be required to read the plan and must sign the Health and Safety Plan Acknowledgement Form to confirm that they understand and agree to abide by the provisions of this plan.

9.2 Daily Safety Meetings

Daily safety meetings (“tailgate meetings”) make accident prevention a top priority for everyone and reinforce awareness of important accident-prevention techniques. The following daily safety meeting procedures and practices are required:

- Daily safety meetings will be held each morning prior to conducting site activities.
- The Daily Safety Briefing form in Appendix A will be used to document each meeting.
- Copies of the completed Daily Safety Briefing forms will be maintained on-site during the course of the project.

9.3 Hazardous Waste Operations Training

Personnel working on project sites that present a potential exposure to hazardous wastes or other hazardous substances shall be trained in accordance with the requirements of the 29 CFR 1910.120 (HAZWOPER) regulation. Training requirements will consist of the following:

- Field personnel must complete a minimum of 40 hours of hazardous waste activity instruction.
- Field personnel must complete a minimum of 3 days of supervised field instruction.
- Field personnel assigned to the site will also have received 8 hours of refresher training if time lapsed since their previous training has exceeded 1 year.
- On-site managers and supervisors directly responsible for employees engaged in hazardous waste operations will receive an additional 8 hours of supervisory training.
- Field personnel shall be current in first aid/CPR and bloodborne pathogen training.
- Other training may be required depending on the task to be performed (e.g., confined space, excavation/trenching, underground storage tank removal, fall protection, respiratory protection, and hazard communication).

9.4 Hazard Communication Program

The purpose of hazard communication (Employee Right-to-Know) is to ensure that the hazards of all chemicals located at the field project site are communicated to all Anchor QEA personnel and subcontractors according to 29 CFR 1926.59.

Every container of hazardous materials must be labeled by the manufacturer, who must also provide a MSDS upon initial order of the product and upon request thereafter. The actual format may differ from company to company (e.g., National Fire Protection Association [NFPA], Hazardous Material Information System [HMIS], or other), but the labels must contain similar types of information. Maintain manufacturer labels if at all possible. The label may use words or symbols to communicate the following:

- The name of the chemical
- The name, address, and emergency telephone number of the company that made or imported the chemical
- The physical hazards (Will it explode or catch fire? Is it reactive? Is it radioactive?)

- Any important storage or handling instruction
- The health hazards (Is it toxic? Could it cause cancer? Is it an irritant? What is the target organ?)
- The basic protective clothing, equipment, and procedures that are recommended when working with the chemical

MSDS for all chemicals brought onto the site or anticipated to be encountered on site shall be provided in Appendix C of this HASP. These MSDS shall be readily available for reference by site personnel and emergency response personnel.

Hazardous materials received without proper labels shall be set aside and not distributed for use until properly labeled.

If a hazardous chemical is transferred into a portable container (approved safety can), even if it is for immediate use only, the contents of the portable container (for example, acetone, gasoline, etc.) must be identified.

10 GENERAL PPE REQUIREMENTS

The minimum level of PPE should be selected according to the hazards that may be encountered during site activities in accordance with established U.S. Environmental Protection Agency (EPA) levels of protection (D and C). Only PPE that meets American National Standards Institute (ANSI) standards shall be worn. Workers must maintain proficiency in the use and care of PPE.

Refer to Section 5 of this plan for site-specific job task and level-of-protection requirements.

10.1 Minimum Requirements – Level D Protection

The minimum level of protection on project sites will be Level D protection, which consists of the following equipment:

- Standard work uniform/coveralls
- Work boots with safety toe (meets ANSI Z41 – 1991 requirements for foot protection)
- Approved safety glasses or goggles (meets ANSI Z87.1 – 1989 requirements for eye protection)
- Hard hat (meets ANSI Z89.1 – 1986 requirements for head protection)
- Traffic safety vest
- Hearing protection when there are high noise levels

Level D protection will be used only when:

- The atmosphere contains no known hazards
- Work functions preclude splashes, immersions, or the potential for unexpected inhalation of, or contact with, hazardous concentrations of chemicals
- Atmospheric concentrations of contaminants are less than the Permissible Exposure Limit (PEL) and/or Threshold Limit Value (TLV)

10.1.1 Modified Level D Protection Requirements

Depending on the Scope of Work and the potential hazards to be encountered, Level D protection shall be modified to include additional protective equipment such as USCG-approved PFDs, face shields/goggles, chemical-resistant clothing, and disposable gloves of

varying materials depending on the chemical substances involved. An upgrade to Modified Level D occurs when there is a possibility that contaminated media can contact the skin or work uniform.

11 GENERAL AIR MONITORING REQUIREMENTS

11.1 General Requirements

In general, air monitoring shall be conducted when the possibility of hazardous atmospheres, chemical volatilization, or contaminated airborne dust exists (e.g., from intrusive activities involving contaminated soils and/or groundwater, developing new monitoring wells, wells containing known COCs, confined space entry, or others).

Air movers or other engineering controls shall be used to exhaust or dilute solvent vapors emanating from monitoring wells or hazardous atmospheres in confined spaces prior to the use of respiratory protection devices.

No air monitoring is anticipated for this project.

12 HEALTH AND SAFETY PROCEDURES AND PRACTICES

This section lists the health and safety procedures and practices applicable to this project. For additional information, consult with the PM.

12.1 Physical Hazards and Controls

12.1.1 General Site Activities

Observe the following general procedures and practices to prevent physical hazards:

- Legible and understandable precautionary labels shall be affixed prominently to containers of potentially contaminated soil, sediment, water, and clothing.
- No food or beverages shall be present or consumed in areas that have the potential to contain COCs and/or contaminated materials or equipment.
- No tobacco products or cosmetics shall be present or used in areas that have the potential to contain COCs and/or contaminated materials or equipment.
- On a project-specific basis, personnel working on or near bodies of water shall wear USCG-approved PFDs.
- Certain project sites may have newly finished work (e.g., concrete, paving, framing, habitat reconstruction, or sediment caps) that may be damaged by unnecessary contact, or that could cause dangerous conditions for personnel (e.g., slipping, sinking, or tripping). Personnel working in or around these areas shall communicate with the PM, FL, and property owner as needed to prevent damaging new work or entering dangerous conditions.
- Generally, all on-site activities will be conducted during daylight hours. If work after dusk is planned or becomes necessary due to an emergency, adequate lighting must be provided.
- Hazardous work, such as handling hazardous materials and heavy loads and equipment operation, should not be conducted during severe storms.
- All temporary electrical power must have a ground fault circuit interrupter (GFCI) as part of its circuit if the circuit is not part of permanent wiring. All equipment must be suitable and approved for the class of hazard present.

12.1.2 Slip/Trip/Fall

Observe the following procedures and practices to prevent slips, trips, and falls:

- Inspect each work area for slip/trip/fall potential prior to each work task.
- Slip/trip/fall hazards identified must be communicated to all personnel. Hazards identified shall be corrected or labeled with warning signs to be avoided.
- All personnel must be aware of their surroundings and maintain constant communication with each other at all times.

12.1.3 Corrosive Material Handling Procedures

Corrosive materials include acids and bases. They are extremely corrosive materials with a variety of uses. Acids include hydrochloric, nitric, and sulfuric acids. Bases include sodium hydroxide. Observe the following procedures when working with corrosive materials:

- Wear gloves and eye-splash protection while using acid dispensed from a small dropper bottle during water sampling.
- Wear a full-face, air-purifying respirator equipped with combination cartridges (organic vapor/acid gas) as well as Tyvek coveralls and nitrile gloves for large volume applications.
- Have an eyewash bottle and/or portable eyewash station on site.
- Do not add anything into a virgin chemical drum, including unused product.
- Avoid mixing strong acids and bases. Consult the CHSM for task-specific evaluation. If mixing is absolutely necessary, do it slowly. Avoid vapors or fumes that are generated.
- When diluting acids, add the acid to water in small quantities and mix cautiously.
- When diluting bases, add water to the base in small quantities and mix cautiously.

12.1.4 Underground/Overhead Utility Line Contact Prevention

Observe the following underground/overhead utility line contact prevention procedures and practices:

- Prior to conducting work, the PM or FL shall ensure that all existing underground or overhead utilities in the work area are located per the state or local mark-out

methods. No excavation work is to be performed until all utility mark-outs are verified.

- The PM or FL shall conduct a site survey to search for signs of other buried or overhead utilities. The results of such surveys shall be documented on the Utility Mark-out documentation form.
- The property owner or facility operator shall be consulted on the issue of underground utilities. As-built drawings shall be reviewed, when available, to verify that underground utility locations are consistent with the utility location mark-outs. All knowledge of past and present utilities must be evaluated prior to conducting work.
- If on-site subsurface utility locations are in question, a private locating service shall be contacted to verify locations. If the investigation calls for boreholes in an area not covered by the municipal One-Call system, then a private utility locate firm shall be contacted to determine the location of other underground utilities.
- The PM shall have documented verbal contact and an agreement with the fiber optic company for all work within 50 feet of any fiber optic cables.
- **Only hand digging is permitted within 3 feet of underground high voltage, product, or gas lines.** Once the line is exposed, heavy equipment can be used, but must remain at least 3 feet from the exposed line.
- Elevated superstructures (e.g., drill rig, backhoe, scaffolding, ladders, and cranes) shall remain a distance of 10 feet away from utility lines and 20 feet away from power lines. Distance from utility lines may be adjusted by the FL depending on actual voltage of the lines.
- Overhead utility locations shall be marked with warning tape or flags where equipment has the potential for contacting overhead utilities.

Table 12-1 shows the minimum clearances required for energized overhead electrical lines.

Table 12-1
Overhead Utility Clearance Requirements

Minimum Clearance from Energized Overhead Electric Lines	
Nominal System Voltage	Minimum Required Clearance
0 to 50 kV	10 feet
51 to 100 kV	12 feet
101 to 200 kV	15 feet
201 to 300 kV	20 feet
301 to 500 kV	25 feet
501 to 750 kV	35 feet
751 to 1000 kV	45 feet

Notes:

kV – kilovolts

Whenever equipment operations must be performed closer than 20 feet from overhead power lines, the Field Leader (FL) must be notified. When clearance to proceed is received from the FL, the electric utility company must be contacted to turn the power off or physically insulate (protect) the lines if the operation must be performed closer to the power line than is allowed in this table. For voltages not listed on this table, add 0.4 inches per kV to obtain the safe distance between equipment and power lines.

12.1.5 Electric Shock

Observe the following procedures and practices to prevent electric shock:

- Maintain appropriate distance from overhead utilities (see Table 12-1).
- Use GFCIs as required.
- Perform lockout/tagout (LO/TO) procedures in accordance with regulatory requirements.
- Use three-pronged plugs and extension cords.
- Contact your local underground utility-locating service.
- Follow code requirements for electrical installations in hazardous locations.
- Always use qualified electricians to install electrical equipment and when conducting troubleshooting activities within 10 feet of exposed live wires.

12.1.6 General Falls/Ladders

Observe the following general falls/ladders procedures and practices:

- Assess work areas for fall hazards. A fall protection system that meets OSHA and ANSI Z359.1 standards must be used if work is conducted 6 feet or more above the surface.
- Use Type 1A rated ladders.
- Make sure ladder rungs are sturdy and free of cracks.
- Use ladders with secure safety feet.
- Pitch ladders at a 4 horizontal to 1 vertical (4H:1V) ratio.
- Secure ladders at the top or have another person at the bottom to help stabilize it.
- Ladders used to access an upper landing surface shall extend at least 3 feet above the upper landing surface.
- Use non-conductive ladders near electrical wires.
- The top rung of a ladder should not be used as a step.
- Do not carry any object or load that could cause a loss of balance or a fall.

12.1.7 Hand and Power Tools

Observe the following procedures and practices when working with hand and power tools:

- Keep hand tools sharp, clean, oiled, dressed, and not abused.
- Worn tools are dangerous. For example, the “teeth” in a pipe wrench can slip if worn smooth, an adjustable wrench will slip if the jaws are sprung, and hammerheads can fly off loose handles.
- Tools subject to impact (e.g., chisels, star drills, and caulking irons) tend to “mushroom.” Keep them dressed to avoid flying spalls. Use tool holders.
- Do not force tools beyond their capacity.
- Flying objects can result from operating almost any power tool, so always warn people in the vicinity and use proper eye protection.
- Each power tool should be examined before use for damaged parts, loose fittings, and frayed or cut electric cords. Tag and return defective tools for repairs. Also inspect for adequate lighting, proper lubrication, and abandoned tools or material that could “vibrate into trouble.”
- Compressed air must be shut off or the electric cord unplugged before making tool adjustments. Air must be “bled down” before replacement or disconnection.

- Proper guards or shields must be installed on all power tools before issue. Do not use improper tools or tools without guards in place.
- Replace all guards before start-up. Remove cranks, keys, or wrenches used in service work.

12.1.8 Motor Vehicle Operation

All drivers are required to have a valid driver's license, and all vehicles must have appropriate state vehicle registration and inspection stickers. The use of hand-held wireless devices is prohibited by Anchor QEA while driving any vehicle for business use at any time, for personal use during business hours, and as defined by law. Additionally, site-specific motor vehicle requirements must be followed, if any.

When driving to, from, and within the job site, be aware of potential hazards including:

- Vehicle accidents
- Distractions
- Fatigue
- Weather and road conditions

To mitigate these hazards, observe the following procedures and practices regarding motor vehicle operation:

- Wear a seat belt at all times and make sure that clothing will not interfere with driving.
- Inspect fluid levels and air pressure in tires, adjust mirrors and seat positions appropriately, watch the fuel level, and fill up when the fuel level is low.
- Plan your travel route and check maps for directions or discuss with colleagues.
- Clean windows and mirrors as needed throughout the trip.
- Wear sunglasses as needed.
- Follow a vehicle maintenance schedule to reduce the possibility of a breakdown while driving.
- Stop driving the vehicle, regardless of the speed (i.e., even 5 mph) or location (i.e., a private road), when the potential of being distracted by conversation exists.

- Drivers are prohibited from using hand-held communication devices (e.g., cell phones) while operating any motor vehicle.
- Get adequate rest prior to driving.
- Periodically change your seat position, stretch, open the window, or turn on the radio to stay alert.
- Pull over and rest if you are experiencing drowsiness.
- Check road and weather conditions prior to driving.
- Be prepared to adjust your driving plans if conditions change.
- Travel in daylight hours, if possible.
- Give yourself plenty of time to allow for slowdowns due to construction, accidents, or other unforeseen circumstances.
- Use lights at night and lights and wipers during inclement weather.

12.1.9 Vehicular Traffic

Observe the following procedures and practices regarding vehicular traffic:

- Wear a traffic safety vest when vehicle hazards exist.
- Use cones, flags, barricades, and caution tape to define the work area.
- Use a vehicle to block work area.
- Engage a police detail for high-traffic situations.
- Always use a spotter in tight or congested areas for material deliveries.
- As necessary, develop traffic control plans and train personnel as flaggers in accordance with the DOT MUTCD and/or local requirements.

See Section 7.4.2 for additional information regarding work in roadways.

12.1.10 Boating Operations

The following precautions shall be followed when conducting boating trailer and launch activities:

- Follow the trailer and boat manufacturers' instructions for securing the boat to the trailer.

- Follow the trailer manufacturer's instructions for securing the trailer to the towing vehicle.
- Prohibit workers from moving into trailer/vehicle pinch points without advising the vehicle operator.
- Use experienced operators when backing trailers on boat ramps.
- Wear proper work gloves when the possibility of pinching or other injury may be caused by moving or handling large or heavy objects.
- Maintain all equipment in a safe condition.
- Launch boats one at a time to avoid collisions.
- Use a spotter for vehicles backing boats to the launch area.
- Understand and review hand signals.
- Wear boots with non-slip soles when launching boats.
- Wear USCG-approved PFDs when working on or near the water.
- Keep ropes and lines coiled and stowed to eliminate trip hazards.
- Maintain three-point contact on dock/pier or boat ladders.
- Ensure that drain plugs are in place, as present.

The following precautions shall be followed when conducting boating operations:

- Maintain a current boater's license(s) as required.
- Wear USCG-approved PFDs for work activities on or near the water.
- Provide a floating ring buoy with at least 90 feet of line in the immediate boat launch/landing areas.
- Step into the center of the boat.
- Keep your weight low when moving on the boat.
- Move slowly and deliberately.
- Steer directly across other boat wakes at a 90-degree angle to avoid capsizing.
- Steer the boat facing forward.
- Watch for floating objects in the water.
- Right-of-way is yielded to vessels on your boat's right, or starboard, and vessels with limited ability to maneuver such as any wind-propelled vessel.

The following precautions shall be followed when working on a boat:

- Observe proper lifting techniques.
- Obey lifting limits (see Section 12.1.19)
- Use mechanical lifting equipment (i.e., pulleys or winches) to move large or awkward loads.
- Wear USCG-approved PFDs for work activities on or near the water.

The safety-related items listed in Table 12-2 shall be available when conducting boating operations:

**Table 12-2
Safety Equipment Specific to In-water Work**

Additional Safety Equipment for Sampling Vessel per U.S. Coast Guard (USCG) Requirements:	
<ul style="list-style-type: none"> • Proper vessel registration, numbering, and documentation (registered with state, certificate of vessel registration number displayed, and carrying a valid certificate of number) • USCG-approved personal flotation devices (PFDs; or life jackets) for every person on the sampling vessel (Type II PFD required, Type I PFD preferred as it will turn most unconscious wearers face up in the water) • Appropriate, non-expired, visual distress devices for day and night use from the following: <ul style="list-style-type: none"> - Three hand-held red flares (day and night), or - One hand-held red flare and two parachute flares (day and night), or - One hand-held orange smoke signal, two floating orange smoke signals (day), and one electric distress light (night only) • Alternate means of propulsion (oars or paddles) • Dewatering device (pump or bailer) • Properly maintained and inspected USCG-approved fire extinguishers (no fixed system = (2) B-1 or (1) B-2 type extinguishers; fixed system = (1) B-1 type extinguisher) • Proper ventilation of gasoline-powered vessels • Sound-producing device (whistle, bell, or horn) • VHF 2-way radio • Proper navigational light display • Throwable life ring with attached line (any vessel larger than 16 feet is required to carry one Type IV [throwable] PFD) 	
Additional USCG Recommended Equipment Includes:	
<ul style="list-style-type: none"> • Extra visual distress signals • Primary and spare anchor • Heaving line • Fenders • First aid kit • Flashlight • Mirror • Searchlight • Sunburn lotion • Tool kit • Spare fuel 	<ul style="list-style-type: none"> • Boat hook • Spare propeller • Mooring line • Food and water • Binoculars • Spare batteries • Sunglasses • Marine hardware • Extra clothing • Spare parts • Pertinent navigational chart(s) and compass

12.1.11 Working Over or Near Water

12.1.11.1 Personal Flotation Devices

PFDs are not required where employees are continuously protected from the hazard of drowning by railings, nets, safety belts, or other applicable provisions.

Type III, Type V, or better USCG-approved International Orange PFD shall be provided and properly worn by all personnel in the following circumstances:

1. On floating pipelines, pontoons, rafts, or stages.
2. On structures extending over or next to the water, except where guard rails or safety nets are provided for employees.
3. Working alone at night where there are drowning hazards, regardless of other safeguards provided.
4. In skiffs, small boats, or launches, unless in an enclosed cabin or cockpit.
5. Whenever there is a drowning hazard.

The following precautions shall be followed when using PFDs:

- Prior to and after each use, the buoyant work vests or life preservers shall be inspected for defects that would alter their strength or buoyancy. Defective devices or devices with less than 13 pounds buoyancy shall be removed from service.
- All PFDs shall be equipped with reflective tape as specified in 46 CFR 25.25-15.
- Thirty-inch USCG-approved ring buoys with at least 150 feet of 600-pound capacity line shall be provided and readily available for emergency rescue operations. The distance between ring buoys shall not exceed 200 feet.
- PFD lights conforming to 46 CFR 161.012 shall be required whenever there is a potential need for life rings to be used after dark. On shore installations, at least one life ring, and every third one thereafter, shall have a PFD light attached. PFD lights on life rings are required only in locations where adequate general lighting (e.g., floodlights or light stanchions) is not provided.

12.1.11.2 Cold Water Work

When the water temperature is below 50° F, field personnel working on or near water shall wear either a float coat and bib-overalls (e.g., a full two-piece “Mustang” survival suit or similar), or a one-piece survival suit. Suits or float coats shall be USCG approved. If extremely cold or severe weather conditions are forecast, work activities should be postponed. Work activities will be continually reviewed and adjustments made if wearing a survival suit during work activities potentially poses a hazard due to warm air temperatures, or limited mobility or agility. In addition, proximity of water work to shore and scope/duration/timing of work activities will be considered when stipulating the above requirement. Overall, if water craft will be used during work, or work will be conducted near water, it is imperative that site specific conditions are considered and evaluated so that proper safeguards and procedures are in place prior to beginning work.

In addition to considering the use of apparel appropriate for anticipated air, weather, and water conditions, field teams shall identify any procedures necessary for cold-water “man-overboard” scenarios.

12.1.12 Noise

Excessive noise is hazardous not only because of its potential to damage hearing, but also because of its potential to disrupt communications and instructions. The following procedures and practices shall be followed to prevent noise-related hazards:

- All employees will have access to disposal ear plugs with a Noise Reduction Rating of not less than 30.
- Ear plugs must be worn in any environment where workers must raise their voices to be heard while standing at a distance of 3 feet or less.
- Ear plugs must be worn by any personnel operating concrete cutting or sawing equipment.

Hearing protection is required for workers operating or working near noisy equipment or operations, where the noise level is greater than 85 A-weighted decibels (dbA) (Time Weighted Average [TWA]), as well as personnel working around heavy equipment. The FL

will determine the need and appropriate testing procedures, (i.e., sound level meter and/or dosimeter) for noise measurement.

When needed, a sound level meter will be used to measure noise levels at selected locations in the work area and on the site perimeter. When used, noise monitoring equipment must be calibrated before and after each shift.

If continuous noise levels are found to exceed 85 dbA at any location within the work area, warning signs will be posted. Workers and visitors will be notified that hearing protection is required. Appropriate hearing protection (i.e., ear plugs or ear muffs) will be worn whenever personnel or visitors are working in that location. A supply of ear plugs will be maintained on site.

Action levels in Table 12-3 will trigger the use of appropriate hearing protection (plugs or muffs). Hearing protection must be able to attenuate noise below 90 dbA (8-hour TWA). Each hearing protection or device has a Noise Reduction Rating (NRR) assigned by EPA. The calculation for a hearing protection device's effectiveness is:

$$\text{Noise reading dbA} - (\text{NRR} - 7\text{dB}) < 90 \text{ dbA}$$

Table 12-3
Noise Exposure Action Levels

Instrument	Measurement	Action
Type I or Type II Sound Level Meter or Dosimeter	> 80 dbA to 85 dbA	Hearing protection recommended. Limit work duration to 8-hour shifts.
	> 85 dbA to 90 dbA	Hearing protection required. Limit work duration to 8-hour shifts.
	> 90 dbA to 115 dbA	Hearing protection required. Investigate use of engineering controls. Limit work duration to 8-hour shifts.
	> 115 dbA	Stop work. Consult CHSM.

12.1.13 Lifting and Material Handling

Observe the following procedures and practices for lifting and material handling:

- Use leather gloves when handling metal, wire rope, sharp debris, or transporting materials (e.g., wood, piping, drums, etc.).
- The size, shape, and weight of the object to be lifted must first be considered. No individual employee is permitted to lift any object that weighs over 60 pounds. Multiple employees or mechanical lifting devices are required for objects over the 60-pound limit.
- Plan a lift before doing it. Bend at the knees and lift with the legs; keep the natural curves of the back; do not use back muscles.
- Check the planned route for clearance.
- Use the buddy system when lifting heavy or awkward objects.
- Do not twist your body while lifting.
- Know the capacity of any handling device (e.g., crane, forklift, chain fall, or come-along) that you intend to use.
- Use tag lines to control loads.
- Ensure that your body, material, tools, and equipment are safe from such unexpected movement as falling, slipping, rolling, tripping, bowing, or any other uncontrolled motion.
- Trucks (i.e., flat beds) hauling equipment or materials must not be moved once rigging has been released.
- Chock all material and equipment (such as pipe, drums, tanks, reels, trailers, and wagons) as necessary to prevent rolling.
- Tie down all light, large-surface-area material that might be moved by the wind.
- When working at heights, secure tools, equipment, and wrenches against falling.
- Do not store materials or tools on ducts, lighting fixtures, beam flanges, hung ceilings, or similar elevated locations.
- Fuel-powered tools used inside buildings or enclosures shall be vented and checked for excessive noise.

12.1.14 Fire Control

Observe the following fire control procedures and practices:

- Smoke only in designated areas.
- Keep flammable liquids in closed containers.

- Keep the work site clean; avoid accumulating combustible debris such as paper.
- Obtain and follow property owner hot work safety procedures when welding or performing other activities requiring an open flame.
- Isolate flammable and combustible materials from ignition sources.
- Ensure fire safety integrity of equipment installations according to NEC specifications.

12.1.15 Static Electricity and Transfer of Flammable Liquids

Observe the following procedures and practices regarding static electricity when transferring flammable liquids:

- Electrically bond and ground pumps, transfer vessels, tanks, drums, bailers, and probes when moving flammable liquids.
- Electrically bond and ground vacuum trucks and the tanks they are emptying.
- Do not splash fill containers with flammable liquids.
- Pour flammable liquids slowly and carefully.
- Two fire extinguishers (2A20:BC) must be available, charged, inspected, and readily accessible.

12.1.16 Cleaning Equipment

Observe the following procedures and practices when cleaning equipment:

- Wear appropriate PPE to avoid skin and eye contact with isopropyl alcohol, Alconox®, or other cleaning materials.
- Stand upwind to minimize any potential inhalation exposure.
- Dispose of spent cleaning solutions and rinses accordingly.

12.2 Environmental Hazards and Controls

12.2.1 Heat Stress

Observe the following general procedures and practices regarding heat stress:

- Increase the number of rest breaks and/or rotate workers in shorter work shifts.
- Watch for signs and symptoms of heat stress and fatigue (see Section 12.2.1.1).

- During hot months, plan work for early morning or evening.
- Use ice vests when necessary.
- Rest in cool, dry areas.

12.2.1.1 Signs, Symptoms, and Treatment

Adverse climatic conditions are important considerations in planning and conducting site operations. High ambient temperature can result in health effects ranging from transient heat fatigue, physical discomfort, reduced efficiency, personal illness, and increased accident probability to serious illness or death. Heat stress is of particular concern when chemical protective garments are worn since they prevent evaporative body cooling. Wearing PPE places employees at considerable risk of developing heat stress.

Heat stress is caused by a number of interacting factors, including environmental conditions, clothing, workload, and the individual characteristics of the worker. Because heat stress is probably one of the most common (and potentially serious) illnesses, regular monitoring and other preventive precautions are vital.

Heat Rash. Heat rash can be caused by continuous exposure to hot and humid air and skin abrasion from sweat-soaked clothing. The condition is characterized by a localized red skin rash and reduced sweating. Heat rash reduces the ability to tolerate heat. To treat, keep skin hygienically clean and allow it to dry thoroughly after using chemical protective clothing.

Heat Cramps. Heat cramps are caused by profuse perspiration with inadequate electrolytic fluid replacement. This often robs the larger muscle groups (stomach and quadriceps) of blood, which can cause painful muscle spasms and pain in the extremities and abdomen. To treat, remove the employee to a cool place and give sips of water or an electrolytic drink. Watch for signs of heat exhaustion or heat stroke.

Heat Exhaustion. Heat exhaustion is a mild form of shock caused by increased stress on various organs to meet increased demand to cool the body. Onset is gradual and symptoms should subside within 1 hour. Symptoms include a weak pulse; shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; and fatigue. To treat, remove the employee to a cool

place and remove as much clothing as possible. Give sips of water or electrolytic solution and fan the person continuously to remove heat by convection. Do not allow the affected person to become chilled. Treat for shock if necessary.

Heat Stroke. Heat stroke is the most severe form of heat stress; the body must be cooled immediately to prevent severe injury and/or death. ***This is a medical emergency!*** Symptoms include red, hot, dry skin; a body temperature of 105° F or higher; no perspiration; nausea; dizziness and confusion; and a strong, rapid pulse. Since heat stroke is a true medical emergency, transport the patient to a medical facility immediately. Prior to transport, remove as much clothing as possible and wrap the patient in a sheet soaked with water. Fan the patient vigorously while transporting to help reduce body temperature. If available, apply cold packs under the arms, around the neck, or any other place where they can cool large surface blood vessels. If transportation to a medical facility is delayed, reduce body temperature by immersing the patient in a cool-water bath (however, be careful not to over-chill the patient once body temperature is reduced below 102° F). If this is not possible, keep the patient wrapped in a sheet and continuously douse with water and fan.

12.2.1.2 Prevention

The implementation of preventative measures is the most effective way to limit the effects of heat-related illnesses. During periods of high heat, adequate liquids must be provided to replace lost body fluids. Replacement fluids can be a 0.1% saltwater solution, a commercial mix such as Gatorade, or a combination of these with fresh water. The replacement fluid temperature should be kept cool, 50° F to 60° F, and should be placed close to the work area. Employees must be encouraged to drink more than the amount required to satisfy thirst. Employees should also be encouraged to salt their foods more heavily during hot times of the year.

Cooling devices such as vortex tubes or cooling vests can be worn beneath impermeable clothing. If cooling devices are worn, only physiological monitoring will be used to determine work activity.

All workers are to rest when any symptoms of heat stress are noticed. Rest breaks are to be taken in a cool, shaded rest area. Employees shall remove chemical protective garments during rest periods and will not be assigned other tasks.

All employees shall be informed of the importance of adequate rest and proper diet, including the harmful effects of excessive alcohol and caffeine consumption.

12.2.1.3 Monitoring

Heat stress monitoring should be performed when employees are working in environments exceeding 90° F ambient air temperature. If employees are wearing impermeable clothing, this monitoring should begin at 77° F. There are two general types of monitoring that the health and safety representative can designate to be used: wet bulb globe temperature (WBGT), and physiological. The Heat Stress Monitoring Record form (see Appendix A) will be used to record the results of heat stress monitoring.

Note that some states such as Washington and California have specific regulatory standards for protection of employees from heat stress-related injuries.

Wet Bulb Globe Temperature (WBGT). The WBGT index is the simplest and most suitable technique to measure the environmental factors that most nearly correlate with core body temperature and other physiological responses to heat. When WBGT exceeds 25° C (77° F), the work regimen in Table 12-4 should be followed.

Table 12-4
Permissible Heat Exposure Threshold Limit Values

Work/Rest Regimen	Workload		
	Light	Moderate	Heavy
Continuous work	86° F (30.0° C)	80° F (26.7° C)	77° F (25.0° C)
75% work, 25% rest each hour	87° F (30.6° C)	82° F (28.0° C)	78° F (25.9° C)
50% work, 50% rest, each hour	89° F (31.4° C)	85° F (29.4° C)	82° F (27.9° C)
25% work, 75% rest, each hour	90° F (32.2° C)	88° F (31.1° C)	86° F (30.0° C)
These TLVs are based on the assumption that nearly all acclimated, fully-clothed workers with adequate water and salt intake should be able to function effectively under the given working conditions without exceeding a deep body temperature of 100.4° F (38° C).			

(From OSHA Technical Manual, Section III: Chapter 4 - Heat Stress)

The TLVs denoted in Table 12-4 apply to physically fit and acclimatized individuals wearing light, summer clothing. If heavier clothing that impedes sweat or has a higher insulation value is required, the permissible heat exposure TLVs should be adjusted based on the WBGT Correction Factors in Table 12-5.

Table 12-5
WBGT Correction Factors

Clothing Type	WBGT Correction
Summer lightweight working clothing	32° F (0° C)
Cotton coveralls	28° F (-2° C)
Winter work clothing	25° F (-4° C)
Water barrier, permeable	86° F (-6° C)
Fully encapsulating	14° F (-10° C)

Physiological. Physiological monitoring can be used in lieu of, or in addition to, WBGT. This monitoring can be self-performed once the health and safety representative demonstrates appropriate techniques to affected employees. Since individuals vary in their susceptibility to heat, this type of monitoring has its advantages. The two parameters that are to be monitored at the beginning of each rest period are:

- **Heart Rate** – The maximum heart rate (MHR) is the amount of work (beats) per minute a healthy person’s heart can be expected to safely deliver. Each individual will count his/her radial (wrist) pulse for 1 minute as early as possible during each rest period. If the heart rate of any individual exceeds 75% of their calculated MHR (MHR = 200 - age) at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work until his/her sustained heart rate is below 75% of their calculated MHR.
- **Temperature** – Each individual will measure his/her temperature with a thermometer for 1 minute as early as possible in the first rest period. If the temperature exceeds 99.6° F at the beginning of the rest period, then the work cycle will be decreased by one-third. The rest period will remain the same. An individual is not permitted to return to work if his/her temperature exceeds 100.4° F

12.2.1.4 Training

Employees potentially exposed to heat stress conditions will be instructed on the contents of this procedure. This training can be conducted during daily tailgate safety meetings.

12.2.2 Cold Stress

Observe the following procedures and practices regarding cold stress:

- Take breaks in heated shelters when working in extremely cold temperatures.
- Upon entering the shelter, remove the outer layer of clothing and loosen other layers to promote evaporation of perspiration.
- Drink warm liquids to reduce the susceptibility to cold stress.
- Be aware of cold stress symptoms, including shivering, numbness in the extremities, and sluggishness.
- Provide adequate insulating dry clothing to maintain warmth if work is performed in air temperature below 40° F. Wind chill cooling rates and the cooling power of air are critical factors. The higher the wind speed and the lower the temperature in the work area, the greater the insulation value of the protective clothing required.
- If the air temperature is 32° F or less, hands should be protected.

- If only light work is involved and if the clothing on the worker may become wet on the job site, the outer layer of the clothing in use should be impermeable to water. With more severe work under such conditions, the outer layer should be water repellent, and the outer wear should be changed as it becomes wetted. The outer garments should include provisions for easy ventilation in order to prevent wetting of the inner layer by sweat.
- If available clothing does not give adequate protection to prevent cold injury, work should be modified or suspended until adequate clothing is made available, or until weather conditions improve.
- Implement a buddy system in which workers are responsible for observing fellow workers for early signs and symptoms of cold stress.

12.2.2.1 Signs, Symptoms, and Treatment

Cold stress can range from frostbite to hypothermia. The signs and symptoms of cold stress are listed below. The appropriate guidelines should be followed if any personnel exhibit these symptoms:

Frostbite. Frostbite is characterized by pain in the extremities and loss of manual dexterity. "Frostnip," or reddening of the tissue, is accompanied by a tingling or loss of sensation in the extremities and continuous shivering.

Hypothermia. Hypothermia is characterized by pain in the extremities and loss of manual dexterity, with severe, uncontrollable shivering, and an inability to maintain the level of activity. Symptoms include excessive fatigue, drowsiness, irritability, or euphoria. Severe hypothermia includes clouded consciousness, low blood pressure, pupil dilation, cessation of shivering, unconsciousness, and possible death.

Remove the patient to a warm, dry place. If the patient's clothing is wet, remove it and replace it with dry clothing. Keep the patient warm. Re-warming of the patient should be gradual to avoid stroke symptoms. Dehydration, or the loss of body fluids, may result in a cold injury due to a significant change in blood flow to the extremities. If the patient is conscious and alert, warm sweet liquids should be provided. Coffee and other caffeinated

liquids should be avoided because of diuretic and circulatory effects. Extremities affected by frostbite should be gradually warmed up and returned to normal temperature. Moist compresses should be applied; begin with lukewarm compresses and slowly increase the temperature as changes in skin temperature are detected. Keep the patient warm and calm and remove them to a medical facility as soon as possible.

12.2.3 Inclement Weather

Observe the following procedures and practices regarding inclement weather:

- Stop outdoor work during electrical storms (lightning strikes), hailstorms, high winds, and other extreme weather conditions such as extreme heat or cold
- Take cover indoors or in a vehicle
- Listen to local forecasts for warnings about specific weather hazards such as tornadoes, hurricanes, and flash floods

12.2.4 Insects/Spiders

Observe the following general procedures and practices regarding insects/spiders:

- Tuck pants into socks
- Wear long sleeves
- Use insect repellent
- Avoid contact by always looking ahead to where you will be walking, standing, sitting, leaning, grabbing, lifting, or reaching
- Check for signs of insect/spider bites, such as redness, swelling, and flu-like symptoms

The most dangerous spiders to humans in North America are black widows and brown spiders (also known as brown recluse or fiddleback spiders). A guide to identifying these spiders is presented in Table 12-6.

Table 12-6
North American Hazardous Spider Identification Guide

Hazardous Spider Identification Guide	
<p>Black Widow Spider</p> <ul style="list-style-type: none"> • Abdomen usually shows hourglass marking. • Female is 3 to 4 centimeters in diameter. • Have been found in well casings and flush-mount covers. • Not aggressive, but more likely to bite if guarding eggs. • Light, local swelling and reddening are early signs of a bite, followed by intense muscular pain, rigidity of the abdomen and legs, difficulty breathing, and nausea. • If bitten, see a physician as soon as possible. 	
<p>Brown Spiders (aka Brown Recluse or Fiddleback)</p> <ul style="list-style-type: none"> • Found in the central and southern United States, although in some other areas, as well. • 1/4-to-1/2-inch-long body, and size of a silver dollar. • Hide in baseboards, ceiling cracks, and undisturbed piles of material. • Bite may either go unnoticed or may be followed by a severe localized reaction, including scabbing, necrosis of the affected tissue, and very slow healing. • If bitten, see a physician as soon as possible. 	

12.2.5 Bees and Wasps

Many encounters with bees and wasps occur when nests built in well casings or excavation areas are disturbed. Before opening a well casing, take a few moments to observe whether or not insects are entering or exiting. If they are flying to and from the casing, avoid it if possible. If you must be in an area where disturbing a nest is likely, be sure to wear long pants and a long-sleeved shirt. Stinging insects fly around the top of their target, so if you get into trouble, pull a portion of your shirt over your head and run away.

If you get stung, look for a stinger, and, if present, remove it as soon as possible. Several over-the-counter products or a simple cold compress can be used to alleviate the pain of the

sting. If the sting is followed by severe symptoms, or if it occurs in the neck or the mouth, seek medical attention immediately because swelling could cause suffocation.

If you need to destroy a nest, consult with the PM and project FL first. Commercially available stinging insect control aerosols are very effective, but could potentially contaminate the well. Once the nest is destroyed, fine mesh may be applied over the exit and entry points of a well casing to prevent re-infestation.

12.2.6 Ticks

Ticks in North America can be carriers of several diseases, including Lyme's Disease, Rocky Mountain Spotted Fever, and ehrlichiosis.

Limiting exposure to ticks reduces the likelihood of infection when exposed to tick-infested habitats. Measures to prevent tick exposure include the following:

- Remove leaf litter and brush in areas where you will be working prior to tick season.
- Wear light-colored clothing so that ticks are visible.
- Tuck your pant legs into your socks.
- Apply repellents to discourage tick attachment.
- Promptly inspect your body and remove crawling or attached ticks when you leave a tick-infested area.
- Conduct tick checks on buddies upon exiting any suspect area (may be needed multiple times per work day).
- Be aware of seasonal activity; ticks are often most active in the spring.

Observe the following procedures and practices if you are bitten by a tick:

- Use fine-tipped tweezers or shield your fingers with tissue, paper towel, or rubber gloves.
- Grasp the tick as close to the skin surface as possible and pull upward with steady, even pressure. Do not twist or jerk the tick; this may cause mouthparts to break off and remain in the skin.
- Do not squeeze, crush, or puncture the body of the tick because its fluids may contain infectious organisms.

- Do not handle the tick with bare hands because infectious agents may enter through mucous membranes or breaks in the skin.
- After removing the tick, thoroughly disinfect the bite site and wash your hands with soap and water.
- You may wish to save the tick for identification in case you become ill within 2 to 3 weeks. Place the tick in a sealed plastic bag in the freezer, and mark the bag with the date of the bite.

12.2.7 Mosquitoes

Mosquitoes in the United States have been known to carry West Nile Virus, St. Louis encephalitis, and Dengue Fever. To avoid mosquito bites:

- Apply insect repellent containing DEET (N,N-diethyl-meta-toluamide) when outdoors. DEET is very effective, but could potentially contaminate samples.
- Read and follow the product directions whenever you use insect repellent.
- Wear long-sleeved clothes and long pants treated with repellent to further reduce your risk, or stay indoors during peak mosquito feeding hours (dusk until dawn).
- Limit the number of places available for mosquitoes to lay their eggs by eliminating standing water sources from around the work area.
- If you need to destroy a nest, consult with the PM and project FL first.
- Check to see if there is an organized mosquito control program near the project site. If no program exists, work with the local government officials to establish a program.

12.2.8 Poisonous Snakes

Observe the following procedures and practices regarding poisonous snakes:

- Avoid walking in areas where snakes may nest or hide. When walking, always look ahead for signs of snakes.
- Use extreme caution when moving or lifting objects that could be used by snakes as cover.
- Never reach under or behind objects or into other areas where snakes may hide.
- Wear sturdy leather boots.

- Poisonous snakebites are medical emergencies. If bitten by any type of snake, immediately seek medical attention.

12.2.9 Bird Droppings

Large populations of roosting birds may present a disease risk. The most serious health risks arise from disease organisms that grow in the accumulations of bird droppings, feathers, and debris under a roost—especially if roosts have been active for years. Among the fungal diseases associated with bird droppings, the two most common are Histoplasmosis and Cryptococcosis.

If you are working in an area where large quantities of droppings are present, follow certain precautions to minimize the risk from disease organisms in the droppings:

- Wear a respirator that can filter particles as small as 0.3 microns, such as a HEPA filter.
- Wear disposable protective gloves, hat, coveralls, and boots if you will be in close contact.
- Wash or shower at the work site after cleanup, if possible.
- If allowable, modify the structure or use methods to prevent birds from re-establishing the roost.

12.2.10 Feral Dogs

Feral (i.e., “wild” or “stray”) dogs have been observed at several Anchor QEA job sites. Packs of feral dogs can be dangerous, so if you observe them on the site, call animal control immediately. If a dog approaches you, take the following steps to reduce your chances of being attacked:

- Do not run away or run past the dog.
- Remain calm. If you say anything, speak calmly and firmly. Avoid eye contact. Try to stay still until the dog leaves, or back away slowly until the dog is out of sight. Do not turn and run.
- If you fall to the ground or are knocked down, curl into a ball, placing your hands over your head and neck. Protect your face.

If a dog bites someone, take the following steps:

- Restrain the dog immediately, if it is safe to do so. The dog will have to be quarantined or tested for rabies.
- Check on the victim's condition. Call 911 if paramedic response is required.

12.2.11 Rodent-Borne Diseases

Rodent infestation on a site has the potential to cause serious communicable diseases including hantavirus pulmonary syndrome and bubonic plague. The most common rodent-borne disease is hantavirus, which may infect workers who inhale tiny droplets containing the virus when fresh rodent urine, droppings, or nesting materials are stirred up.

Working conditions that may put workers at risk of hantavirus include:

- Contact with rodent feces or dried urine, which may mobilize particles of these wastes into the air where they may be inhaled
- Entry into rooms or warehouses that have been closed up and infested for extended periods
- Activities that stir up dust that may mobilize hantavirus

If working in areas of obvious rodent infestation, the Centers for Disease Control (CDC) recommends the following precautions:

- Do not enter rooms or warehouses that have been closed up unless absolutely necessary.
- If work in closed-up areas or areas with rodent infestation is necessary, contact professional exterminators to eliminate the infestation and clean up the location
- If an exterminator is not available or possible, employees should clean up the infested area using the following steps:
 - When going into outbuildings or rooms that have been closed for an extended period, open them up and air them out before cleaning.
 - Don an air-purifying respirator equipped with HEPA P-100 cartridges and nitrile gloves before cleaning.

- Do not stir up dust by sweeping or vacuuming droppings, urine, or nesting materials.
- Thoroughly wet contaminated areas with detergent or liquid to deactivate the virus. Most general-purpose disinfectants and household detergents are effective. However, a hypochlorite solution prepared by mixing 1 and 1/2 cups of household bleach in 1 gallon of water may be used in place of a commercial disinfectant.
- Once everything is wet, pick up contaminated materials with a damp towel, then mop or sponge the area with disinfectant.
- Spray dead rodents with disinfectant and flea repellent (to avoid bubonic plague), then double-bag and dispose of in an appropriate waste disposal system. Contact the local or state health department for other disposal methods.
- Finally, remove respirator and disinfect gloves before taking them off with disinfectant or soap and water. After taking off the clean gloves, thoroughly wash hands with soap and warm water.

If you experience hantavirus symptoms (fatigue, fever, and muscle aches) within 1 to 5 weeks of exposure to potentially affected rodents and their droppings, contact your supervisor immediately.

12.2.12 Poisonous Plants

Poisonous plants include poison ivy, poison oak, and poison sumac as shown in Table 12-7. Observe the following procedures and practices regarding poisonous plants:

- Avoid entering areas infested with poisonous plants.
- Immediately wash any areas that come into contact with poisonous plants.
- Use PPE when there is a possibility of contact with poisonous plants.

Table 12-7
Hazardous Plant Identification Guide

Hazardous Plant Identification Guide		
<p>Poison Ivy</p> <ul style="list-style-type: none"> • Grows in West, Midwest, Texas, and the East Coast • Several forms—vine, trailing shrub, or shrub • Three leaflets (can vary from 3 to 9) • Leaves are green in summer, and red in fall • Yellow or green flowers • White berries 		
<p>Poison Oak</p> <ul style="list-style-type: none"> • Grows in the East (New Jersey to Texas) and Pacific Coast • 6-foot tall shrubs or long vines • Oak-like leaves in clusters of three • Yellow berries 		
<p>Poison Sumac</p> <ul style="list-style-type: none"> • Grows in boggy areas, especially in the Southwest and Northern states • Shrub up to 15 feet tall • Seven to 13 smooth-edged leaflets • Glossy pale yellow or cream-colored berries 		

If you have been exposed to poison ivy, oak, or sumac, act quickly because the toxin in the plants penetrates the skin within minutes. If possible, stay outdoors until you complete the first two steps:

1. Cleanse the exposed skin with generous amounts of isopropyl alcohol.
2. Wash the skin with water.
3. Take a regular shower with soap and warm water. Do not use soap until this point because it will pick up the toxin from the surface and move it around.
4. Wash clothes, tools, and anything else that may have been in contact with the toxin, with alcohol and water. Be sure to wear hand protection during that process.

Signs and symptoms of exposure include redness and swelling that appears 12 to 48 hours after exposure. Blistering and itching will follow. If you have had a severe reaction in the past, you should see a physician right away. Over-the-counter products that are available to alleviate symptoms include Cortaid®, Lanacort®, baking soda, Aveeno® oatmeal baths, and calamine lotion.

13 MEDICAL SURVEILLANCE PROGRAM

This section describes the medical surveillance program that Anchor QEA field personnel must comply with when working on sites where there is a potential for exposure to hazardous wastes or other hazardous substances.

13.1 General Requirements

Anchor QEA employees shall be enrolled in a medical surveillance program in compliance with OSHA standards (29 CFR 1910.120(f)) under the following circumstances:

If they are involved with any of the following operations:

- *Cleanup operations* required by a governmental body, whether federal, state, local, or other involving hazardous substances that are conducted at uncontrolled hazardous waste sites (including, but not limited to, the EPA's National Priority List [NPL] sites, state priority list sites, sites recommended for the EPA NPL, and initial investigation of government-identified sites that are conducted before the presence or absence of hazardous substances has been ascertained).
- *Corrective actions* involving cleanup operations at sites covered by the Resource Conservation and Recovery Act of 1976 (RCRA) as amended (42 U.S.C. 6901 et seq)
- *Voluntary cleanup operations* at sites recognized by federal, state, local, or other governmental bodies as uncontrolled hazardous waste sites.
- *Operations involving hazardous wastes* that are conducted at treatment, storage, and disposal (TSD) facilities regulated by 40 CFR Parts 264 and 265 pursuant to RCRA or by agencies under agreement with the EPA to implement RCRA regulations.
- *Emergency response operations* for releases of, or substantial threats of releases of, hazardous substances without regard to the location of the hazard.

And, if the employee(s) meets the following criteria:

- Are or may be exposed to hazardous substances or health hazards at or above the established PEL, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more per year.

In addition, employees are required to be enrolled in the medical surveillance program if they meet any of the following conditions:

- Wear a respirator for 30 days or more per year
- Are injured, become ill, or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operations
- Are members of a Hazardous Materials (HAZMAT) team

Anchor QEA employees required to be enrolled in a medical surveillance program under 29 CFR 1910.120(f) shall have medical examinations and consultations made available to them by Anchor QEA on the following schedule:

- Prior to assignment
- At least once every 12 months unless the attending physician believes a longer interval (not greater than biennially) is appropriate
- At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last 6 months
- As soon as possible upon notification that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the PEL or published exposure levels in an emergency situation
- At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary

The content of medical examinations or consultations made available to employees shall be determined by the attending physician but shall include, at a minimum, a medical and work history with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the work site.

The attending physician shall provide Anchor QEA with a written opinion for each examined employee that contains the following information:

- Whether the employee has any detected medical conditions that would place the employee at an increased risk of impairment of the employee's health from hazardous waste operations work, emergency response, or respirator use
- Any recommended limitations on the employee's assigned work
- A statement that the employee has been informed of the results of the medical examination and any medical conditions that require further examination or treatment

The written opinion obtained by Anchor QEA shall not reveal specific findings or diagnoses unrelated to occupational exposures. Medical surveillance and other employee-related medical records shall be retained for at least the duration of employment plus 30 years.

13.2 Crew Self Monitoring

All personnel will be instructed to look for and inform each other of any deleterious changes in their physical or mental condition during the performance of all field activities. Examples of such changes are as follows:

- Headaches
- Dizziness
- Nausea
- Blurred vision
- Cramps
- Irritation of eyes, skin, or respiratory system
- Changes in complexion or skin color
- Changes in apparent motor coordination
- Increased frequency of minor mistakes
- Excessive salivation or changes in papillary response
- Changes in speech ability or speech pattern
- Symptoms of heat stress or heat exhaustion
- Symptoms of hypothermia

If any of these conditions develop, the affected person will be moved from the immediate work location and evaluated. If further assistance is needed, personnel at the local hospital

will be notified, and an ambulance will be summoned if the condition is thought to be serious. If the condition is the result of sample collection or processing activities, procedures and/or PPE will be modified to address the problem.

APPENDIX A

HEALTH AND SAFETY LOGS AND FORMS



FIELD SAFETY EQUIPMENT CHECKLIST

The following is a list of safety-related gear that may be appropriate depending on the type of work being conducted. The purpose of this checklist is twofold: 1) ensure that all field crew members think about appropriate safety gear needs before heading to the worksite; and 2) provide an extensive list of gear to consider in order to serve as a reminder of potential safety gear needs during a field effort.

Safety Briefing Log or Notebook

Personal Protective Gear

- Rain pants and jacket
- Hard hats
- Boots (steel-toed, if appropriate)
- Safety glasses
- Ear protection
- Nitrile gloves (inner and outer pair)
- Tyvek overalls
- H₂S sensor
- Flashlight
- EpiPen (inquire if any field staff use one)
- Other:

Communications

- Notify office staff of day's field plan
- Walkie Talkies
- Cell phones
- Satellite phone (if appropriate)
- Contact numbers (other field crew members, PM, others to notify that you are accessing site)

Boat Safety Gear

U.S. Coast Guard Required Gear:

- 1. Personal flotation device (PFD), preferably life jacket, for each occupant
- 2. Fire extinguisher (filled to operable range)
- 3. Flares (unexpired)
- 4. Horn
- 5. Navigation lights
- First aid kit
- Bowline and stern line
- Anchor and anchor line
- Paddle

Warm Weather Safety Gear

- Sunscreen
- Water
- Hat
- Light clothes

Cold Weather Safety Gear

- Warm clothes (preferably synthetics)
- Hat
- Gloves
- Boot warmers
- Thermos of warm drink/soup

General Gear for Work Near Water

- Life jacket
- Boots or waders (hip or chest)
- Throwline
- Spare propeller and linchpin
- Appropriate personal protective gear (boots or waders) to step onto shore if necessary
- Drain plug (and spare)
- Boat fuel and oil
- Weather radio (if appropriate)
- Weather, tides, and currents forecasts
- Warm clothes/blanket in dry bag



CITY OF PORTLAND ENVIRONMENTAL SERVICES



Water Pollution Control Laboratory

6543 N. Burlington Avenue, Bldg. 217, Portland, Oregon 97203 • Dan Saltzman, Commissioner • Dean Marriott, Director

October 5, 2010

Ted McCall
McCall Oil and Chemical Corporation
5480 NW Front Avenue
Portland, OR 97223

RE: **Monitoring waiver** for 1200-Z general stormwater discharge permit, DEQ file #: 5417.

Dear Mr. McCall:

The City of Portland (City) has received your monitoring waiver request, dated September 28, 2010, for collecting stormwater samples as required by the 1200-Z general stormwater discharge permit issued to the McCall Oil facility located at 5480 NW Front Avenue, Portland, Oregon. McCall Oil has requested a monitoring waiver for the following sample points and parameters:

<i>Sample Point</i>	<i>pH</i>	<i>Suspended Solids, Total</i>	<i>Oil and Grease, Total</i>	<i>Copper, Total</i>	<i>Lead, Total</i>	<i>Zinc, Total</i>
	<i>s.u.</i>	<i>mg/L</i>	<i>mg/L</i>	<i>mg/L</i>	<i>mg/L</i>	<i>mg/L</i>
OWS 001	X	X	X	X	X	X

The City has reviewed the results of the last four samples submitted and concurs these results are valid and below permit benchmarks. **Therefore, the requested monitoring waiver meets permit conditions for a monitoring waiver.** The monitoring waiver is in effect for the remainder of the permit term unless revoked given the conditions listed in *Schedule B.3.c*. **Please note that the monthly visual monitoring for floating solids and oil and grease at all discharge points is still required and cannot be waived.**

In granting this monitoring waiver the City requests that all of the BMPs currently in place be continued so as to be most protective of stormwater quality. If you have any questions regarding this letter please contact me at (503) 823-5537.

Sincerely,

Tim Dean
Permit Manager
City of Portland
Industrial Stormwater Program

Copy: Dennis Jurries, ODEQ